9-2015

Early childhood development and the social determinants of health inequities: A review of the evidence

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September 2015 P-EQ-273

VicHealth acknowledges the support of the Victorian Government.

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September 2015

Acknowledgements

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Suggested citation:
Moore, T., McDonald, M. & McHugh-Dillon, H. (2014). Early childhood development and the social determinants of health inequities: A review of the evidence. Parkville, Victoria: Centre for Community Child Health at the Murdoch Childrens Research Institute and the Royal Children's Hospital.

Contents

1. Introduction

'The accident of birth is a principal source of inequality'
(Heckman, 2013, p. 3).

If the reality of everyday life in Australia reflected the clichéd principle of a 'fair go', we could argue that Heckman's description of the United States – where the principal source of inequality in the United States is the 'accident of birth' – is not relevant. Certainly, the gap between the richest and poorest families in the US is greater than the gap between the richest and poorest families in Australia (Wilkinson & Pickett, 2009). But we cannot say that regardless of the circumstances into which a child is born in Australia, they will have an equal chance of good health and positive wellbeing.

In every society, including Australia, differences in socioeconomic status (SES) translate into inequalities in child development (Goldfeld & West, 2014; Hertzman et al., 2010; Strategic Review of Health Inequalities in England post-2010 Committee, 2010). These development discrepancies are evident across cognitive, social, behavioural and health outcomes. Australian children with additional health and developmental needs, from language backgrounds other than English, Aboriginal and Torres Strait Islander (ATSI) children, children from the most disadvantaged SES communities and those living in remote areas of Australia are much more likely to experience developmental vulnerability than other children (Goldfeld & West, 2014; Goldfeld et al., 2014).

As an illustration, 29.6% of ATSI children are vulnerable on at least two domains of child development, compared to 11.8% of all Australian children (Goldfeld & West, 2014). In very remote areas, 30.5% of children are vulnerable on at least two domains of child development (Goldfeld & West, 2014). Furthermore, there is a 10% difference between the proportion of children in the most disadvantaged SES communities who are vulnerable on more than two domains of development (17.8%) and the proportion of children in the most advantaged SES communities (7.1%) (Goldfeld & West, 2014).[1]

These types of development discrepancies grow larger over time, with advantages and disadvantages accumulating throughout life (Strategic Review of Health Inequalities in England post-2010 Committee, 2010). Discrepancies between children that are based upon avoidable differences in social and economic circumstances emerge early and are evident as early as nine months of age (Halle et al., 2009; Heckman, 2008; Nicholson et al., 2010).

It is well established that health follows a social gradient: progressively better health is associated with increasing socioeconomic position (Bambra et al., 2010; WHO Commission on the Social Determinants of Health, 2008; Graham, 2007; Strategic Review of Health Inequalities in England post-2010 Committee, 2010; Woolfenden et al., 2013). These social gradients are also evident across

[1] The Australian Early Development Index (AEDI) (now known as the Australian Early Development Census (AEDC)) measures five domains of children's development: physical health and wellbeing, social competence, emotional maturity, language and cognitive skills, and communication skills and general knowledge (Goldfeld et al., 2014). The AEDC is a cross-sectional population census of early childhood development in communities across Australia and was completed in 2009 and 2012 by teachers for all children during their first full-time year of schooling (Goldfeld et al., 2012).

a wide range of indicators pertaining to children. Outcomes for children and families improve progressively the further up the socioeconomic spectrum they are, and worsen progressively the further down they move (Hertzman et al., 2010; Strategic Review of Health Inequalities in England post-2010 Committee, 2010). Hence, poor child and family outcomes are not concentrated exclusively at the bottom of the socioeconomic spectrum in a small group of poor or problematic families, but are distributed across the entire spectrum in a graded fashion (Denburg & Daneman, 2010; Marmot, 2006; Strategic Review of Health Inequalities in England post-2010 Committee, 2010; Wilkinson & Pickett, 2009).

There is overwhelming evidence that social factors have profound influences on health (Halfon et al., 2010; Strategic Review of Health Inequalities in England post-2010 Committee, 2010; WHO Commission on the Social Determinants of Health, 2008), and that the circumstances in which children are born determine their exposure to environments that promote or compromise healthy development. A growing body of evidence indicates a correlation between household income and child health in Australia and similar countries, such as the UK and Canada, despite the fact that those countries, like Australia, have well-established universal health care financing and delivery systems (Emerson et al., 2006; Khanam et al., 2009; Kruk, 2013). The importance of the social (as opposed to biological or genetic) causes of this gradient — for example, housing quality, access to health care or quality of work – has also been established.

Children's health, development and wellbeing can be compromised by a number of direct adverse experiences during the prenatal and postnatal periods (Hertzman, 2010). Adverse experiences known to be associated with later negative outcomes include: sustained poverty; recurrent physical, emotional or sexual abuse; emotional or physical neglect; parental alcohol or drug abuse; an incarcerated household member; homelessness; parental depression, suicidality or mental illness; and family violence. The trends regarding the prevalence of these problems in the families of Australian children are worrying (Moore & McDonald, 2013). For example, 17% of all Australians classified as homeless in 2011 were children (ABS, 2012), the rate (i.e. number per 1000 children) of children and young people on care and protection orders has almost doubled over the past decade (AIHW, 2012) and in some jurisdictions there is evidence of an increase in hospital admissions relating to child maltreatment (O'Donnell et al., 2010).

Inequities during the early years (typically defined as the first eight years of life) are especially important because of the nature of early childhood development. Children are particularly sensitive to social determinants, especially in the early years (Dyson et al., 2010; Hertzman, 2010; Strategic Review of Health Inequalities in England post-2010 Committee, 2010). During this period a number of capabilities and competencies develop (Hertzman & Wiens, 1996; McCain & Mustard, 1999; Shonkoff, 2012). Early childhood has a major role in shaping health in later life (Dyson et al., 2010).

This report focuses on early childhood development and the social determinants of health inequities. It is one of eight reviews of evidence commissioned by VicHealth to support the use of a planning tool for health promotion policy and practice in Victoria, known as *Fair Foundations: The VicHealth framework for health equity* (VicHealth, 2013).

According to the Fair Foundations framework (VicHealth, 2013) there are three layers of influence that lead to inequitable, socially produced, systematic differential health and wellbeing outcomes:

(1) the socioeconomic, political and cultural context, encompassing governance, policy, and dominant cultural and societal norms and values;

(2) daily living conditions, which are the circumstances in which people are born, grow, live, work and age; and

(3) individual health-related factors, that is, the health-related knowledge, attitudes and behaviours of individuals that result from, and are responses to, their socioeconomic, political and cultural context, social position and daily living conditions.

The socioeconomic, political and cultural context generates a process of social stratification which allocates people to different social positions, with the end result being unequal distribution of power, economic resources and prestige (VicHealth, 2013). Key indicators of social position include educational attainment, occupational status, income level, gender, race/ethnicity, Aboriginality and disability. One's social position impacts upon daily living conditions and individual health-related factors, ultimately resulting in differences in health and wellbeing outcomes such as life expectancy, mortality rates, morbidity rates and self-rated health status.

There are two important concepts to be clarified at this point: health inequity and early childhood. Firstly, health equity is the notion that everyone should have a fair opportunity to attain their full health potential and that no one should be disadvantaged from achieving this potential if it can be avoided. Some children have biological differences that impact upon their health, wellbeing and development and that are not preventable, such as a chromosomal abnormality. These are not health inequities. In this report, in line with the Fair Foundations framework: *health inequalities* are differences in health status between population groups, whereas *health inequities* are differences in health status between population groups that are socially produced, systematic in their unequal distribution across the population, avoidable and unfair.

Secondly, it is important to clarify the definition of early childhood, as it is used in this report. We define early childhood as the first eight years of life, as well as the prenatal period. During the prenatal period, a number of factors can impact upon an infant's long-term outcomes (Guyer et al., 2009; Hertzman & Wiens, 1996; Shonkoff, 2010). For example, poor growth in utero has been linked to subsequent health problems such as heart disease and hypertension, and low birth weight increases the risk of developing conditions such as obesity and diabetes in the child's later years (National Scientific Council on the Developing Child, 2010; Massin et al., 2001; Shankaran et al., 2006). In Australia, the factors that lead to poor growth in utero are also often related to inequities (Woolfenden et al., 2013).

Report structure

In this review we answer three key questions relating to early childhood development and the social determinants of health inequities:

1. What are the causes of inequities in health and development (at each layer of the social determinants framework) during early childhood, and how do these inequities impact upon health and development during this period?

2. What is the relationship between health and development inequities during the early years and subsequent health outcomes in later childhood and adulthood?
3. What works to reduce inequities during the prenatal and early childhood years?

The report is structured around these three questions. Prior to describing the evidence, we will briefly describe the methodology we used for the search. We will then describe the causes of inequities in health and development during early childhood. Next, we will look at the relationship between health and development inequities during the early years and subsequent health outcomes and how interventions reduce later adult inequities. We will then look at what works to reduce inequities amongst young children facing significant levels of disadvantage. We will conclude by proposing a range of strategies that would appear to have the most potential to reduce inequities during early childhood within the Australian context.

2. Methodology

The search strategy we utilised for this review combined four different approaches. We used this approach in recognition that traditional systematic database searches may not enable the identification of all the key evidence. The four approaches we used were:

1. *a traditional database search*: we used a targeted search strategy to identify literature using four databases: SCOPUS, MEDLINE, PsycInfo and Google Scholar.
2. *a search for information about specific longitudinal studies*: longitudinal studies are most likely to reveal links between prenatal/early childhood experiences and later health behaviours and outcomes.
3. *a search for authoritative summaries, conceptual and theoretical works*: which were outlined in various sources, including books, grey literature and handbooks.
4. *a search of relevant websites*: websites that were likely to have highly relevant grey literature from Australia, the UK, Canada and the US were searched.

For questions 1 and 2 (described above), we used evidence gathered from all but the first of the above four approaches. For question 3, we utilised the evidence gathered from all four approaches. (For a more detailed description of the methodology, see Appendix A.)

3. What are the causes of inequities during early childhood and how do these inequities impact upon health and development during this period?

Socioeconomic, political and cultural level

Over the last 50 or so years, developed nations have experienced dramatic societal changes as the result of a range of interconnected factors – economic, demographic, social and technological – at globalised, national and local levels. These include: the adoption of free market economic policies and the globalisation of commerce; a concurrent rise in general prosperity; a reduction in government control over market and in government responsibility for provision of public services; a fall in birth rates; an increase of average life expectancy; increased movement of people between countries, leading to more diverse societies; and the globalisation of ideas and culture through the World Wide Web (Bauman, 1998, 2011; Giddens, 2002; Richardson & Prior, 2005; Urry, 2002).

As a result, there have been significant changes in communities, families, and in the conditions under which families are raising young children (Hayes et al., 2010; Hughes et al., 2007; Li et al., 2008; Moore, 2008; Moore & Skinner, 2010; Parke, 2013; Richardson & Prior, 2005; Richardson et al., 2005; Trask, 2010). As Richardson (2005, p. 309), puts it,

> The past half century has seen a 'great disruption' in the family, in civil society, and in the normative framework of intimate relations and reproduction. This has profoundly changed the environment in which children grow up.

These changes have some unintended consequences or 'collateral damage' (Bauman, 2011). Although most children have benefited from the social and economic changes that have occurred over the past few decades, there is evidence of worsening or unacceptably high levels of problems in a minority of children across all aspects of development, health and wellbeing (Access Economics, 2009; Bruner, 2004; Eckersley, 2008, 2011; Li et al., 2008; Moore & McDonald, 2013; Perrin et al., 2007; Richardson & Prior, 2005; Stanley et al., 2005). A significant proportion of Australians face significant levels of social exclusion, especially single parents, Indigenous Australians and people with a long-term health condition or disability (McLachlan et al., 2013).

Almost all trends pertaining to child health and wellbeing in Australia are worse for Indigenous Australian children (AIHW, 2012; ARACY, 2013; Wise, 2013). Babies born to Indigenous mothers are twice as likely as babies born to other Australian mothers to be of low birth weight (AIHW, 2012). Indigenous children have higher rates of hospitalisations and deaths due to injury; are more likely to be victims of child abuse, neglect and sexual assault; and are more likely to be involved with the child protection system, be in out-of-home care, or be homeless (AIHW, 2014).

Although socioeconomic variables account for between one-third and one-half of the gap in self-assessed health status between Indigenous and non-Indigenous Australians (Booth & Carroll, 2008), there is also a well-recognised 'clustering of stressful events' in the Australian Indigenous population, which also impacts negatively upon ATSI children's health and development (Askew et al., 2013).

While there is some uncertainty regarding whether the social gradient of health observed in the general Australian population occurs amongst the Indigenous Australian population, there appears to be some evidence to support the claim, especially in regard to smoking status (Shepherd et al., 2012b). For example, Indigenous Australian women from a low SES background are two-and-a-half times more likely to smoke than Indigenous women from a high SES background (Thrift et al., 2011). Nevertheless, the pattern of the social gradient of health appears, in general, to be less universal and less consistent amongst the Indigengous Australian population when compared to the general Australian population (Shepherd et al., 2012b).[2]

Children with disabilities also fare worse in some key areas. Rates of abuse and neglect amongst children and young people with disability are higher than children and young people without a disability (Robinson, 2012). In their first year of full-time schooling, 58% of Australian children with additional health and developmental needs (including autism spectrum disorders and Attention Deficit Hyperactivity Disorder) are developmentally vulnerable in at least one domain of child development (Goldfeld & West, 2014). In Australia, children with an intellectual disability are significantly more likely to be exposed to socioeconomic disadvantage (Emerson et al., 2010).

Furthermore, families who care for children with a disability experience higher rates of financial hardship than the general Australian population and lower levels of labour force participation than other families with young children (Edwards, 2009; Emerson et al., 2008; Bourke-Taylor et al., 2011). Families of children with a disability may have difficulties accessing early childhood education and care (Goddard, 2007), and Aboriginal Australian children with a disability often face long delays in treatment due a number of reasons, including lack of awareness of services, inadequate availability of services, logistical and cultural factors (Digiacomo et al., 2013). The caregiving demands on parents as a result of caring for a child with a chronic disability can, without sufficient support, impact negatively upon the physical and psychological wellbeing of parents (Raina et al., 2005). And the mechanisms that determine eligibility for disability services for children are typically complex, inconsistent and subject to change, thereby placing additional stress on parents (Ray, 2005).

Families have also been affected by the profound social changes that have occurred in society. Families themselves have changed significantly, becoming more varied in their structure, and more diverse culturally and ethnically: families are smaller (but houses are bigger); extended families are also smaller (so that children have fewer cousins, uncles and aunts); childlessness is increasing (there are more people who neither have children nor intend to have children); the percentage of children as a proportion of the total population is decreasing (from a third to a quarter); and the age of first-time mothers is increasing (Hayes et al., 2010; Richardson, 2005; Richardson & Prior, 2005). These changes have important consequences: children are growing up with fewer siblings, as well as smaller extended families; children see fewer examples of parenting as they grow up; and, because families have fewer children, parents are more intensely concerned about their welfare.

The circumstances in which families are raising young children have also changed: more parents are working; more mothers with babies are working; more parents are doing shift work, working non-standard hours and working within a '24/7' work environment; more parents are working longer

[2] The reasons that the social gradient of health appears to be different for the Australian Indigenous population include the impact of exclusion and discrimination (which 'flattens' the gradient) and social factors other than SES that impact upon health, such as cultural continuity (Shepherd et al., 2012b).

hours; more families are jobless; and more children are being raised in poverty (O'Brien, 2009; Richardson, 2005; Richardson & Prior, 2005).

These changes in family conditions matter because of the overwhelming evidence that social factors have profound influences on health (Halfon et al., 2010). Children are particularly sensitive to social determinants, especially in the early years. Children's health, development and wellbeing can be compromised by a number of direct adverse experiences during the prenatal and postnatal periods (Hertzman, 2010).

Individual developmental pathways are influenced by interactions amongst risk factors (increasing the probability of a poor outcome) and protective factors (increasing the probability of a positive outcome). Risk factors tend to be pervasive – a child or family confronting adversity in one context is also likely to be facing it in others as well (Oroyemi et al., 2009). Children's exposure to risk factors is a circumstance of the socioeconomic environment into which they are born: the lower their SES, the more risks they are likely to experience.

Risk factors also tend to be self-reinforcing over time: behaviours or experiences at one point in time increase the likelihood of the same behaviours and experiences occurring at a later point. As a result of the pervasive and self-reinforcing nature of risk and protective factors, children's environments tend to remain stable over time. This can contribute to the intergenerational transmission of some outcomes: for example, a UK longitudinal study found that children who grew up in social housing, whose fathers were manually employed and whose families had low incomes were likely to live in social housing, be manually employed and have low incomes in adulthood (Sigle-Rushton, 2004).

As noted previously, some children have biological differences that impact upon their health, wellbeing and development and that are not preventable, such as a chromosomal abnormality. Although these are not health inequities, it is important to note that even for conditions where there is clearly a biological cause, there are inequities in health outcomes. For example, children with cystic fibrosis from low-income families in the US and UK have been found to have a significantly increased risk of death compared with those from higher-income families (Berry et al., 2010).[3] In Australia, a recent analysis indicated that children with special health-care needs were represented across demographic profiles, yet the proportions were greater amongst children from low SES communities (Goldfeld et al., 2012).

These social gradients appear to be becoming steeper in Australia: the gap between those in the top socioeconomic level and those at the bottom is growing wider and more entrenched (Leigh, 2013).[4] This is of concern because of evidence that it is the degree of equality, rather than the overall wealth of a nation, that determines the health and social outcomes of its population (Wilkinson, 2009;

[3] These phenomena are typically attributed to a 'severity effect' – whereby children from disadvantaged backgrounds are less able to respond to the effects of ill health, so their health problems become more severe (Apouey & Geoffard, 2013). Kruk et al. (2013) found that in the UK, higher household income increases the probability that children fully recover from certain diseases within a certain time period. Another study undertaken in the UK found an association between multiple forms of deprivation in childhood (0-14 years old) and rates of emergency admissions to hospital for four or more days for some health problems, including breathing difficulties and feverish illness (Kyle et al., 2012).

[4] The US, the UK and Italy have experienced the greatest increases in income inequality since the 1970s. The smallest increases have occurred in Norway, Sweden and Finland. Australia falls in between those two groups (Levine, 2012).

Wilkinson & Pickett, 2009). Greater inequality tends to increase most of the problems that show a social gradient and are associated with relative deprivation (Wilkinson, 2009). Thus, it is the gap between rich and poor rather than absolute levels of poverty that is damaging (Friedli, 2009; Wilkinson, 2005; Wilkinson & Pickett, 2009).

As noted previously, discrepancies between children from advantaged and disadvantaged backgrounds emerge early and are evident from a very young age (Ermisch et al., 2012; Halle et al., 2009; Heckman, 2008; Nicholson et al., 2012). By the time they get to school, there are marked differences between children in regard to the cognitive, non-cognitive and social skills they need to succeed in the school environment (Cunha et al., 2006; Duncan et al., 2007; Feinstein, 2003; Le et al., 2006; Shonkoff & Phillips, 2000; Stipek, 2001). Children who lag behind their peers at school entry tend to be from low-income families (Brooks-Gunn & Duncan, 1997; Lee & Burkham, 2002; Reardon, 2011). The differences between these children and their more affluent peers at school entry are predictive of later academic and occupational success (Boethel, 2004; Cunha et al., 2006; Dockett and Perry, 2001; Feinstein, 2003; Halle et al., 20092013; Le et al., 2006; Shonkoff & Phillips, 2000; Stipek, 2001).

In addition to these educational and academic discrepancies – which become larger as children get older – evidence demonstrates that as children get older, the difference between the health of those from disadvantaged backgrounds and the health of those from advantaged backgrounds becomes larger (Khanam et al., 2009). Research undertaken in the UK identified no correlation between income and child health when children were 0-1 years; the correlation only became significant after children had turned two (Apouey & Geoffard, 2013). These findings suggest that children from low-income families in countries similar to Australia, such as the UK, do not have significantly higher rates of poor health *when they are born*; rather, it is the effect of growing up in a low-income family that creates the family income-child health gradient.

Furthermore, research comparing the reading and vocabulary scores of Canadian and US children at age 4-5 indicates that Canadian children have outpaced US children in regard to their reading and vocabulary skills *before* they begin formal schooling, indicating that the comparatively poor results for US children on international education assessments are not the result of school-related factors, but the result of poorer social conditions during the early years (Merry, 2013). Obviously, that does not mean that the quality of schooling is unimportant – an academically effective primary school education can in fact mitigate some of the negative impacts of disadvantage during the early years (Sammons et al., 2013). Moreover, an academically effective primary school can lessen the extent to which cognitive abilities during the initial years of primary school (e.g. reading, writing) predict later cognitive abilities during the latter years of primary school (Sammons et al., 2013). Nevertheless, when combined, all of these findings confirm the importance of early childhood as a key focus for health promotion and prevention efforts.

Governance and policy

One result of the rapid social, demographic, economic and technological changes that have occurred is that the nature of the social problems facing society and governments has altered – such problems are now more likely to be 'wicked' or complex problems that are not able to be resolved through traditional service-driven approaches (Australian Public Service Commission, 2007; Conklin, 2006; Head, 2008; Moore & Fry, 2011; Weber & Khademian, 2008; Wexler, 2009). Wicked problems are

different from ‘tame’ problems (i.e. problems that are similar to puzzles and for which there is always an answer) and from ‘critical’ problems (i.e. crises for which there is little time for decision-making and action) (Grint, 2010). Each type of problem requires a different response (Grint, 2010). Wicked problems require decision-makers to ‘ask questions and engage the collective’ in order that situations can be collectively assessed, and also require that there be joint recognition that there is a need to act differently to address a problem (Grint, 2010, p. 9).

Wicked issues include climate change, poverty, indigenous disadvantage, child abuse, family violence, obesity, crime, and natural resource management (Australian Public Service Commission, 2007; Devaney & Spratt, 2009; Egger & Swinburn, 2010; Fogel et al., 2008; Head, 2008; O’Donnell et al., 2008). Some of these (e.g. poverty, child abuse, family violence) are not new problems, but have become more of a concern as we have become increasingly aware of their adverse consequences for development and the complex nature of the underlying causes. Other issues (e.g. obesity, climate change) are relatively new and are a more direct result of cumulative social and other changes.

In the light of the growing awareness of the ‘wicked’ nature of the problems being addressed, governments have begun to explore place-based approaches to service delivery (Centre for Community Child Health, 2011; Kania & Kramer, 2011; Jolin et al., 2012; Moore & Fry, 2011). Place-based approaches (also known as collective impact approaches) involve a comprehensive, collaborative multi-level effort to address simultaneously all the factors that affect child, family and community functioning in a defined a sociogeographic area (Moore & Fry, 2011). These initiatives are still in their early stages and have not yet been evaluated, but place-based approaches will undoubtedly be a major focus of intervention efforts for some time.

The nature of the health problems has also changed. This is partly because many of the simpler health and other problems have been successfully addressed over the course of the last two centuries through public health and other interventions (Palfrey et al., 2005). But problems have also changed as an outcome of the social and economic changes that have occurred. These changes are interconnected in complex ways, and we do not know exactly how they interact with one another to produce the effects they do or what we need to do to ensure that they have more uniformly beneficial effects (Kearns et al., 2007).

Another change that has occurred is that adult conditions such as coronary heart disease, stroke, diabetes and cancer that were regarded solely as products of adult behavior and lifestyles are now seen as being linked to processes and experiences occurring decades before, in some cases as early as intrauterine life, across a wide range of impairments (Shonkoff et al., 2009).

In the light of these changes, Australian governments at all levels have sought to develop new strategies and policies. At a national level, Australian governments have responded to evidence regarding the importance of early childhood by:

- developing a National Early Childhood Development Strategy (Council of Australian Governments, 2009a);
- developing a National Framework for Protecting Australia’s Children (Council of Australian Governments, 2009b);
- committing to a human capital agenda (Banks, 2010);
- increasing their investment in early childhood education and care (DEEWR, 2010);

- funding the Australian Early Development Index (AEDI) (now known as the Australian Early Development Census);
- agreeing on a national Early Years Learning Framework for early childhood services (Council of Australian Governments, 2009c);
- developing a National Quality Agenda for Early Childhood Education and Care for early childhood services (Council of Australian Governments, 2009d);
- developing a National Breastfeeding Strategy (Australian Health Ministers Conference, 2009);
- drafting a National Framework for Universal Child and Family Health Services (Australian Health Minister's Advisory Council, 2011); and
- initiating Parental Leave Pay and Dad and Partner Pay (Department of Human Services, 2015).

As more parents have moved into the workforce, child care has become a major policy issue (e.g. Productivity Commission, 2013). The flexibility of early childhood education and care (ECEC) services is an especially important factor in enabling women's return to employment (Toroyan et al., 2003). However, when the focus of the child care debate has solely been the productivity of parents and the need to get them back into the workforce, the main concern has been the affordability of child care (McDowell, 2005). Yet the evidence regarding the importance of the early years suggests that the long-term productivity of the children themselves should also be a major consideration, and that the main concern should therefore be the quality of the care provided (CCCH, 2014). This tension between social investment in ECEC and the promotion of employment amongst women is common in developed countries, including the UK (Lewis, 2003).

High quality ECEC may be considered expensive (Kalil et al., 2012), yet cost-benefit studies indicate that the benefits of high quality ECEC justify those costs.[5] Nevertheless, when the short-term costs of high quality ECEC are borne by parents, there is a risk that primary caregivers in low-income families (primarily women) will find it difficult to go back to work as their child gets older. Australian parents with the highest incomes typically have more child care options than parents on low incomes (Kalil et al., 2012).

Differing ideas regarding who is responsible for children – and the costs they incur – impact upon the type of social policies that are pursued (Goodin, 2005). As Goodin (2005) notes,

> [If] children are seen as a collective national responsibility or as a moral charge upon all of us to whom they are vulnerable, the state has potentially a much greater role in promoting the well-being of children (p. 80).

In the Australian political arena, there are competing ideas regarding who is responsible for children and, as a result, debates regarding the extent to which Australians governments should cover the costs of early childhood education and care – and the costs of improving the quality of care provided by the sector – have not yet been resolved.

A reluctance on the part of government to invest in early childhood education and care reflects a historical tradition in Australia to provide direct cash support for families of young children to buy

[5] Furthermore, in regard to the National Quality Framework, there is some evidence to suggest that the financial impact of the Australian National Quality Framework on the household incomes of two-parent households (where both parents work) will be relatively small (Bruenig et al., 2014).

services, as opposed to investing in services that are directly aimed at young children (e.g. early childhood education and care) (Katz & Redmond, 2009).

Political views and ideological perspectives influence policy and research decisions (Lawrence, 2005; Raphael, 2008). Issues that are overlooked in the policy arena may also be overlooked by researchers (Raphael, 2008).[6] However, the ongoing collection of data can drive a commitment to social policy because it keeps an issue – such as health inequity – 'on the agenda' (Tobias et al., 2009). Even in the face of strong evidence pertaining to maternal and/or child health, a definitive policy response will not necessarily follow (see Lawrence, 2005). And even when the structural factors that lead to health problems are identified, policy reform to address inequity will not necessarily be undertaken (Olsen et al., 2009).

Decisions regarding policy and research may be shaped by reports that compare outcomes for children in different countries, especially when the data reflects badly upon a country (Baxter, 2007). However, even when new policies are introduced, they may not necessarily be implemented as intended 'on the ground' by services and/or practitioners (Smith & Wilmott, 2008; Condon et al., 2011). In some cases policy directives may not be clearly understood by the people who are required to implement them, they may be interpreted in different ways by different people, particularly when the resources available to deliver services are insufficient to implement a specific policy – all of these factors potentially dilute the effects of the policy (Condon, 2011; Grant et al., 2013). For example, a policy of universal health promotion may not be feasible in a community with high levels of families with complex needs (Condon et al., 2011). In other cases, there may be a lack of practical and proven information to inform policy (Gauld et al., 2006).

The public policy environment also impacts upon breastfeeding rates (Australian Health Ministers Conference, 2009). For example, public policy can influence the work environment, and the work environment can operate as a barrier or enabler for women to breastfeed (see Clifford & McIntyre, 2008; Hawkins et al., 2007). Australian research indicates that maternal employment in the first six months of an infant's life contributes to premature cessation of breastfeeding (Cooklin et al., 2008) and that returning to work was one of the main reasons women stopped breastfeeding (Weber et al., 2011). A systematic review of breastfeeding support in both developed and developing countries found that, in general, support for breastfeeding from employers is relatively low (Clifford & McIntyre, 2008). A study undertaken in New South Wales supports this finding: women working for an area-based health service who had recently returned to work after maternity leave perceived little support from their employer for breastfeeding (Weber et al., 2011).

Greater employment flexibility, less time-intensive jobs and generous parental leave environments typically make it easier for women to continue breastfeeding when they return to work (Baxter, 2008; Australian Health Ministers Conference, 2009). Although there is a lack of high quality evidence pertaining to the impact of public policies – such as flexible working arrangements – upon breastfeeding (Hallam, 2008), there is evidence that legislation that protects breastfeeding in public (currently existing in Australia, Canada and the US) can help to support and promote breastfeeding (Clifford & McIntyre, 2008).

[6] A systematic review undertaken in the UK indicated a relative underinvestment in research pertaining to maternal and perinatal health (less than 1% of all the total money spent on health research) (Fisk & Atun, 2009).

Public policy can also play a role in protecting children from the promotional marketing of goods, such as fatty and sugary foods (Lobstein, 2009), and protecting children from serious injuries sustained from motor vehicle accidents, such as child car restraint legislation in Australia (Reeve et al., 2007).

Another important policy area pertains to single parents, poverty and joblessness. In Australia, there is a much higher rate of poverty amongst single-parent families, when compared to two-parent families (Gray & Baxter, 2012). The low employment rate amongst single parents – and the relatively high proportion of children living in single-parent households – has resulted in a significant proportion of Australian children living in a jobless family (15% of 0-14 year olds in 2010) (Gray & Baxter, 2012; ARACY, 2013). Children living in jobless families in Australia have poorer developmental outcomes across a range of domains when compared to children who do not spend time in jobless families – and the longer children spend in jobless families, the poorer the outcomes (Gray & Baxter, 2012). However, employment that offers poor conditions (e.g. lack of flexibility, lack of paid family leave) can also have negative impacts upon maternal and child health and development (Cooklin et al., 2011; Strazdins et al., 2010). Moreover, one of the mediators for the association between income and ill health (i.e. the lower the income, the poorer the health) is work environment (Hemstrom, 2005).

Policies that target single mothers and encourage workforce participation are especially prominent in the US and are characterised by disincentives for single mothers who do not work, such as cutting welfare benefits, and incentives for single mothers who do, such as increasing the amount of money available for child care (Kalil et al., 2012; Richardson, 2005). A US study found that states with more restrictive welfare policies are associated with a lower utilisation of services amongst welfare recipients, including: dental care, and primary health care (Cheng, 2005). Welfare reform in the US may have led to an increase in the proportion of children who had no health insurance (Kaestner & Kaushal, 2003).

In comparison to the US, Australia has much more generous welfare provisions to lessen the impact of poverty for children growing up in single-parent families, as well as free or subsidised health care entitlements for low-income earners (Kalil et al., 2012).[7] However, in Australia the total *package* of benefits (i.e. cash support, education support, health care, child care and tax breaks) for non-employed single parents of young children, when compared to non-employed childless couples, has historically been relatively low when compared to other developed countries (Katz & Redmond, 2009). A study undertaken in Australia, investigating the impact of a discrepancy between expected and actual child support payments for low-income single parents on welfare, found that, after controlling for income, the discrepancy predicted school functioning, conduct and total mental health problems (Cook et al., 2008).

[7] Overall, one of the leading explanations for the difference between the US and countries like Australia in terms of income inequality (i.e. with the US experiencing much greater increases in income inequality than Australia) is that Australia dedicates a larger proportion of national output to tax and welfare initiatives that equalise incomes (Levine, 2012).

Dominant cultural and societal norms and values

Childhood is being radically reshaped by social change and globalisation (Wells, 2009, 2011). Giddens (1999) summarises the major changes in society's attitudes towards children thus:

> Our attitudes towards children and their protection have altered radically over the past several generations. We prize children so much partly because they have become so much rarer, and partly because the decision to have a child is very different from what it was for previous generations. In the traditional family, children were an economic benefit. Today in Western countries a child, on the contrary, puts a large financial burden on the parents. Having a child is more of a distinct and specific decision than it used to be, and it is a decision guided by psychological and emotional needs. The worries we have about the effects of divorce upon children, and the existence of many fatherless families, have to be understood against the background of our much higher expectations about how children should be cared for and protected (pp. 60–61).

Such views are peculiarly those of contemporary developed western societies; from an anthropological perspective, the raising of children, their role in society, and the degree to which family and community is structured around them, varies quite significantly around the world (Lancy, 2008). Whereas western societies view children as precious and innocent, there are other societies where children are viewed either as unwanted and inconvenient, or as desirable for their usefulness (Lancy, 2008).

Even in developed western nations such as Australia, there may not be consensus about the value and role of childhood. With children forming a smaller proportion of the population, there is an increasing number of people who do not have children and do not intend to do so, and some questioning by such people of the need to contribute to the costs associated with having children. There are also concerns about the extent to which children are the target of commercial marketing and the damage this can do (Bakan, 2011; Morley et al., 2008; Williams, 2006), especially when the products being marketed are damaging to children's health (Stanley & Daube, 2009).

The general Australian public has a range of misconceptions about early childhood, including that young children are 'passive absorbers of content' and the lives of young children are 'simplfied and uncluttered by influences' (Kendall-Taylor & Lindland, 2013). Although the importance of the early years has been recognised in the Australian political arena (see 'Governance and policy' section above), this message does not seem to have yet taken hold amongst the general Australian population.

These misconceptions, including the idea that that ECEC is not especially important (see Garvis et al., 2012) or that ECEC services are merely 'safe places' to put children whilst their parents work – another common belief amongst the Australian public (Kendall-Taylor & Lindland, 2013) – are problematic because they may impact upon how people view government investments in early childhood programs and may also impact upon how people respond to young children in their everyday lives. Moreover, ECEC has typically been seen as a personal rather than a public concern in Australia, thereby impacting upon the public's interest in improving the quality of the system of ECEC in Australia (as opposed to improving the quality of individual ECEC centres) (Fenech, 2013).

Cultural norms and values have also had a powerful impact upon Australian women's attitudes and behaviours regarding breastfeeding (Australian Health Ministers Conference, 2009). Social norms and wider community attitudes regarding breastfeeding influence women's infant feeding choices (Woolcott Research, 2009). Pro-breastfeeding rhetoric in Australia influences women's breastfeeding choices (Sweet, 2008); however, breastfeeding in public is a common concern for women (Forster & McLachlan, 2010). Women who breastfeed in public may be confronted with negative responses, such as being asked to leave a café or restaurant (Woolcott Research, 2009). Embarrassment, stigma or perceptions of disapproval relating to breastfeeding may discourage women from breastfeeding (Clifford & McIntyre, 2008; Shortt et al., 2013).

Migrant women can also experience tensions in relation to their breastfeeding experience as a result of a clash between their individual beliefs and dominant practices in the new country (Schmied et al., 2012). Some women experience social pressure to bottle-feed rather than breastfeed (Clifford & McIntyre, 2008; Swanson & Power, 2005). Women who choose not to breastfeed may feel pressured to do so by health professionals (Wirihana & Barnard, 2012) and, similarly, health professionals may be reluctant to promote breastfeeding out of fear that they will make mothers who cannot breastfeed 'feel like failures' (Clifford & McIntyre, 2008, p. 12).

Women may believe that breastfeeding in public is illegal (Clifford & McIntyre, 2008). Breastfeeding within the workplace may be considered 'taboo', which can then impact upon working women's willingness to continue breastfeeding (Gatrell, 2007). Practices within ECEC settings in regard to breastfeeding can encourage or discourage breastfeeding (Cameron et al., 2012; Javanparast et al., 2012).

Cultural norms and values can also be beneficial for health; for example, increasing community concern regarding the effect of second-hand tobacco smoke upon children may lead some parents to reduce their own smoking or reduce their children's exposure to second-hand tobacco smoke (Priest et al., 2008). The media can influence families' attitudes and behaviours regarding child health (e.g. media coverage of issues pertaining to immunisation, see Anderberg et al., 2011), debates within the public arena – for example, debates regarding the diagnosis and labelling of children's developmental problems – can impact upon children's access to services (Williams, 2007) and legislation can also influence social norms and values (e.g. the use of child restraints in cars, see Brown et al., 2012). Cultural characteristics within a country can also impact upon how services are delivered; for example, the 'litigation culture' in the US impacts upon the delivery of care to mothers and their infants at birth (van Teijlingen et al., 2008).

Another example of a cultural norm that can have a detrimental effect on children's health is racism; self-reported racism amongst carers of children in remote Indigenous communities in the Northern Territory have been associated with child illness (Priest et al., 2012). Durey & Thompson (2012) note that health services in Australia are underpinned by Anglo-Australian cultural dominance, which can lead not only to overt incidents of racism, but also a subjugation of Indigenous knowledge, beliefs and values. Prevailing ideologies can influence societal attitudes towards policies relating to the distribution of resources (e.g. prevailing ideologies regarding the dispossession of land from Indigenous people) (Sibley & Liu, 2012).

Cultural norms relating to children and families can also change (Priest et al., 2008). For example, Australian attitudes towards the physical punishment of children have changed in recent decades

(Oates, 2011) and there is a greater acceptance of families headed by same-sex couples in Australia (although in some cases homophobic attitudes and heteronormative views of 'the family' persist) (Chapman et al., 2012a, 2012b; Davies & Robinson, 2013). The stigma associated with same-sex-parent families can have a negative impact upon children's wellbeing (Crouch et al., 2012). Evidence from the US and the UK suggests that maternal experiences of racism can impact negatively upon pregnancy outcomes, as well as health and development during the early years (Kelly et al., 2013; Kramer & Hogue, 2009).

In the 'Governance and policy' section above, we discussed the tension regarding child care and workforce participation. Richardson (2005) argues that the general wish for parents to be in employment is not only about the benefits of increased income but also about 'an unspoken fear of the development of an unemployed underclass that is quite disconnected from the world of work' (p. 124). The hostility towards people who rely upon welfare is partly tied to a cultural assumption about the responsibility one has for one's own circumstances; for example, that poverty is the result of personal choice, rather than the result of sociopolitical factors outside the control of individuals (Richardson, 2005).[8] These cultural assumptions can potentially increase inequities amongst children by threatening existing welfare benefits or generating stigma towards jobless families.

The tensions regarding child care and workforce participation at the policy level are also evident within families themselves, as Waldfogel (2006) notes: 'the tensions between respecting choice, promoting quality and supporting employment are higher in the first few years of life than at any other period' (p. 180). These tensions highlight issues regarding gender inequity. Fenech (2013) argues that one of the reasons why ECEC has been viewed as a personal rather than a public concern is the influence of normative views regarding the role of the mother, a view that is reinforced by O'Brien (2009):

> Infant life has not traditionally been considered the province of social policy, possibly because of a historic gendered assumption that only mothers can provide the permitting circumstances (p. 207).

At a practical level, as the majority of child care responsibilities in Australia are shouldered by women, increasing the work hours of the mothers of young children in the workforce may reduce gender inequity (e.g. lower rates of pay for women, difficulties breaking the 'glass ceiling'). But this could have profound impacts upon their children if men continue to work the long hours they currently do, as parents will have less time to spend with their children (Strazdins et al., 2012). The more fathers feel supported by their workplace to access family-friendly work policies, the more satisfied they are with their work-family balance (Craig & Sawrikar, 2009). Some countries have initiated 'use-it-or-lose-it' parental leave schemes which encourage fathers to take paid leave when their infants are born (if the time is not taken, the family loses it) (O'Brien et al., 2009).

[8] Research undertaken in New Zealand suggests that people tend to be more supportive of interventions for some vulnerable groups (e.g. the elderly, people with a disability) than others (e.g. those in need of housing) (Carroll et al., 2011). Richardson's (2005) work suggests that Australians may be less supportive of people who are unemployed when compared to other vulnerable groups. Kiely and Butterworth (2013) investigated the association between welfare receipt and mental health in Australia and found that there is evidence of a direct link between welfare receipt and poor mental health that may be the result of 'welfare stigma' for people receiving unemployment benefits.

Australian research has demonstrated that when parents' hours of work increase, children's wellbeing gets worse, irrespective of parent income (Strazdins et al., 2012). Mothers of young children who work full-time also report poorer rates of physical health and greater rates of stress than mothers of young children who work part-time (Strazdins et al., 2012; Craig & Sawrikar, 2009). Although improving the quality of ECEC is a critical step at both a societal level and in alleviating parents' insecurities about the quality of care their children receive when they are working, this step alone is unlikely to alleviate the tension that women in Australian experience as a result of the competing demands of work and family (Boyd et al., 2013).

The gender imbalance in terms of excessive work hours (primarily shouldered by men) and unpaid child care responsibilities (primary shouldered by women) would appear to reflect long-held restrictive gender norms which suggest that men 'belong' in the public sphere of work (as the 'breadwinner') and women 'belong' in the private sphere of the home (as the 'homemaker') (Adams & Coltrane, 2005). In order to ensure the best possible outcomes for children, as well as gender equity in the workforce, there is an obvious need to challenge the seemingly intractable gender normative roles of men and women in the family that are still present in Australian society.

Daily living conditions

Early child development

During the prenatal period, a number of factors can impact upon an infant's long-term outcomes (Coe & Lubach, 2008; Guyer et al., 2009; Gluckman & Hanson, 2005; Hertzman, 2010; Hertzman & Wiens, 1996; Martin & Dombrowski, 2008; Meaney et al., 2007; Robinson, 2013; Shonkoff, 2010). Until recently, there had been a scientific misconception that the placenta provides a barrier for the growing foetus that protects it from the mother's physical and emotional environment (Gluckman et al., 2007; Paul, 2010). It is now recognised that this is not the case, and that instead of being a passive bystander in the womb during the pregnancy journey, the foetus actively responds to changes within the intrauterine environment (Coe & Lubach, 2008; Gluckman & Hanson, 2005; Robinson, 2013). However, while these changes might be adaptive for the immediate environment, they can come with long-term costs, both psychologically and physically (Blair & Raver, 2012).

Risk factors in pregnancy and early life that are common, or increasing in prevalence, include stress, cigarette smoking, alcohol consumption, obesity, nutrition and poverty (Brown et al., 2011; Martin & Dombrowski, 2008; Phung et al., 2003b; Platt, 2014; Robinson & Daly, 2008; Robinson, 2013) as well as exposure to environmental toxins (Currie, 2011; International Scientific Committee of the International Conference on Fetal Programming and Developmental Toxicity, 2007; Martin & Dombrowski, 2008; Taylor et al., 2014).[9] Children born to less educated and minority mothers are more likely to be exposed to pollution in utero (Currie, 2011). Poor growth in utero is also a major risk factor, being linked to subsequent health problems, such as heart disease and hypertension and low birth weight, that increase the risk of developing conditions such as obesity and diabetes in the child's later years (Centre on the Developing Child, 2010; Massin et al., 2001; Shankaran et al., 2006).

[9] A recent population-based study in Australia found that two-thirds of women who had recently given birth reported one or more stressful life event during pregnancy (Brown et al., 2011).

Infants born preterm are at greater risk of problems both in the short and longer term (Luciana, 2003; Platt, 2014). These problems include infectious and non-infectious respiratory problems, neonatal jaundice, epilepsy, cerebral palsy, visual impairments, cognitive impairment and developmental coordination disorder. Children born prematurely or very small are also more likely to suffer from depression (Patton et al., 2004). The risks of adverse outcomes are highest amongst those born at less than 32 weeks gestation, and decline with increasing gestational age (Platt, 2014).

Young children's postnatal environments are also critical for health and development. In young children particularly, the key developmental environments are relational: children learn through relationships (National Scientific Council on the Developing Child, 2004a; Richter, 2004; Siegel, 2012) – infants and toddlers are hard-wired to use adults' brains to form their own (Siegel, 2012). Relationships change brains neurologically and neurochemically, and these changes may be for the better or for the worse (Cozolino, 2006). Sensitive and responsive care giving and positive attachments with caregivers are essential for the healthy neurophysiological, physical and psychological development of a child (Cozolino, 2012; Hertzman, 2010; Moore et al., 2012a; National Scientific Council on the Developing Child, 2004a, 2004b, 2008; Richter, 2004; Shonkoff et al., 2012). Positive attachments are grounded in attunement and responsiveness.

The brain can change its structure and function in significant ways – it possesses a degree of neuroplasticity that is much greater than previously recognised (Doidge, 2007; Begley, 2009; Davidson & Begley, 2012). These changes come about in two ways – through experiences (external input) and through our own thoughts and intentions (internal input) (Davidson & Begley, 2012; Siegel, 2012). However, young children have not yet developed the capacity to modify their own behavior and brain structure through thoughts and intentions – that's one of the things they have to learn from adults – so they are much more shaped by the external environmental experiences, especially their relationships with caregivers, than are older children and adults.

Caregiving that is inadequate and negligent and attachments that are weak or disrupted result in adverse consequences for the child's survival, health and development (Anda et al., 2006; McCrory et al., 2010; National Scientific Council on the Developing Child, 2005, 2008, 2010; Richter, 2004).

Sustained experiences of physical abuse, emotional abuse and neglect in early childhood also have long-term consequences for mental and physical health, as well as for social adjustment, academic achievements and subsequent employment histories (Cashmore & Shakel, 2013; McLeod et al., 2014; Macmillan, 2009; Norman et al., 2012; Reeve & van Gool, 2013; Zielinski, 2009). Mental health disorders associated with child physical abuse, emotional abuse or neglect include depressive disorders, anxiety disorders, drug abuse and suicidal behaviour. Individuals who were maltreated as children (not limited to sexual abuse) also have a higher risk of contracting sexually transmitted diseases and/or engaging in risky sexual behaviour than non-maltreated individuals (Fergusson et al., 2008; Norman et al., 2012). Adults with a history of childhood abuse suffer from significantly more health conditions, incur higher annual health care costs and are more likely to harm themselves (Reeve & van Gool, 2013).

Sexual abuse in childhood also has long-term effects (Cashmore & Shakel, 2013). Research indicates that children who have been abused, especially those who have experienced sexual abuse, have greater difficulties with interpersonal relationships and trust when compared with non-abused individuals; and are more likely to develop behavioural problems, run away, be involved in vandalism

and juvenile offending when compared with children who have not been sexually abused. While the vast majority of those who have been sexually abused do not go on to abuse others, studies of offender populations indicate a higher rate of child sexual victimisation amongst juvenile and adult offenders compared with the general population. Research indicates that child sexual abuse may be associated with a range of physical and health risk behaviours as well as adverse health outcomes for survivors of such abuse (Cashmore & Shakel, 2013).

In addition, the quality of the relationships *between parents* can be just as influential (Lamb, 2012). For example, during the antenatal period women who have poor levels of support from their partner, or poor relationships with their partner, are at an increased risk of depressed mood during the perinatal period (Bilszta et al., 2008; Kiernan & Pickett, 2006; Schmied et al., 2013). Stronger parental bonds are associated with initiation of breastfeeding (Kiernan & Pickett, 2006). Marital conflict is associated with poorer outcomes in children, whether or not the parents are married or even live together. Unresolved and destructive hostility between parents has worse effects than conflict and disagreements that are resolved constructively. The evidence clearly indicates that what matters for children's development and adjustment is not the make-up and structure of their families, but the quality of their experiences and the wellbeing of those around them (Lamb, 2012).

Experiencing and witnessing domestic and family violence can have profoundly damaging impacts upon children in the short and long term, including physical injuries leading to long-term reduced mobility and long-term mental health problems (Bromfield et al., 2010; Fergusson & Horwood, 1998; Richards, 2011; Australian Domestic & Family Violence Clearinghouse & The Benevolent Society, 2011; The Benevolent Society, 2013). Violence towards women whilst they are pregnant is associated with a higher risk of antenatal depression (Edwards et al., 2008) and a lower likelihood of decreased concurrent drinking and smoking during pregnancy (Powers et al., 2013). In some contexts a child witnessing domestic violence is considered a form of child abuse in and of itself (Bromfield et al., 2010; Richards, 2011).

Chronic exposure to adverse experiences such as child abuse and neglect can cause physiological disruptions that affect the developing brain (as well as other biological systems) in ways that can lead to long-term impairments in learning, behaviour, emotional reactivity and health (Evans et al., 2013; ., 2011., 2011a; Naughton et al., 2013; National Scientific Council on the Developing Child, 2010; Pechtel & Pizzagalli, 2011; Shonkoff, 2012; Shonkoff & Richter, 2013; Taylor & Rogers, 2005). Outcomes that have been linked to chronic exposure to adverse experiences in childhood include heart disease and cancer (Shonkoff et al., 2009), alcoholism and drug abuse (Shonkoff et al., 2009), mental illness (Anda et al., 2006; Green et al., 2010), global cognitive difficulties (including decreased intellectual performance, academic success, language abilities and executive functioning) (Pechtel & Piazzagalli, 2011), emotional regulation (Pechtel & Piazzagalli, 2011) and increased risk of teenage pregnancy (Woodward et al., 2001).

These cumulative effects are evident at both behavioural and biological levels. At the behavioural level, there is a strong link between early adversity and a variety of health-threatening lifestyles in the adolescent and adult years, while at the biological level, the cumulative burden of excessive stress activation over time produces structural and/or functional disruptions that lead to a wide range of physical and mental impairments later in life (Shonkoff, 2012).

The more adverse a person's experiences in early life, the greater the likely incidence of later health, mental health and developmental problems (Anda et al., 2006, 2009; Brown et al., 2009). What jeopardises children's development is the cumulative effect over time of exposure to multiple adverse or risk factors. Multiple risks have multiplicative rather than merely additive effects: the more adverse experiences and conditions children are exposed to and the longer such exposure occurs, the more likely it is that their development will be compromised and the worse the outcomes.

Another key dimension of the early environments that children experience is the extent to which they support learning. Learning and development are cumulative – the skills acquired early form the basis for later skill development (Cunha et al., 2006; Field, 2010; Rigney, 2010). Thus, the skills children possess when they get to school contribute to a chain of effects that either reinforces and amplifies their initial skills and dispositions, or exacerbates initial difficulties and even produces new ones (Alexander et al., 2001; Meisels, 1998; Rigney, 2010; Stipek, 2001, 2005).

Because children's learning is cumulative, early functioning is predictive of later functioning. However, behaviour and functioning at any point in time are also more strongly influenced by the immediate social and physical environment than by past experience (Feinstein & Bynner, 2004; Lewis, 1997, 2005; Macmillan et al., 2004; van IJzendoorn & Juffer, 2006). The apparent contradiction between these two findings can be resolved by recognising that, for a variety of reasons, children's environments tend not to change: the balance of risk and protective factors is more likely to remain the same than to change significantly (Sameroff et al., 1993). While this is not a problem if these environments are positive and stimulating, prolonged exposure to adverse environments can have adverse long-term effects upon children's development and learning (Anda et al., 2006).

The development of competence and autonomy depends upon the learning opportunities and support provided to the child in their daily home and community environments (Blair & Raver, 2012; Deci & Ryan, 2000, 2011; Hertzman, 2010; Pianta, 2013). Children do not develop competencies independently of the contexts in which they grow up, but through them (Pianta, 2013).

What young children learn from adults are not only language and pre-academic skills, but also fundamental socioemotional skills – regulation and modulation of physiological arousal, formation of an effective attachment relationship, self-reliance, and the organisation and coordination of environmental and personal resources (Sroufe, 1995).

A key feature of the environments in which children develop is the extent to which they enable children's meaningful participation. For participation to be meaningful, children must not only be present, but must also be heard. Their role in, and contribution to, the activities of their daily lives must be valued by all those involved, including the children themselves (Moore, et al., 2012a). Participation is both a major driver of development and a major contributor to quality of life (Nussbaum, 2011), as well as a long-term social goal (Zubrick et al., 2009).

The prime relational and learning environments are those provided by the family (Hertzman, 2010; Pianta, 2013; Reeves & Howard, 2013). Children's early experience within their family and aspects of family structure are consistently strong predictors of pre-academic skills, as well as later academic achievement and cognitive functioning (Feinstein et al., 2008; Pianta, 2013). Aspects of the parent-

child relationship, in particular maternal sensitivity during parent-child play interactions, are especially robust predictors of children's later academic competence. The early family environment makes a stronger contribution to children's development than other early childhood environments (Pianta, 2013).

Socioeconomic status is associated with childhood cognitive achievement. Differences in SES are reflected in differences in brain functioning (Hackman et al., 2010; Hackman & Farrah, 2009; Noble et al., 2007). Differences in the cognitive development of children from low- and middle-income families are most observable in regions of the brain associated with language, memory and cognitive control (Hackman & Farrah, 2009; Noble et al., 2007), and there is emerging evidence of differences in the processing of emotion (Hackman et al., 2010). The evidence suggests that prenatal factors, parent-offspring interactions and cognitive stimulation at least partly underlie the effects of SES on brain development (Farah et al., 2008; Hackman et al., 2010). These effects are somewhat specific, with the level of cognitive stimulation in the home environment best predicting a child's cognitive development and the quality of parental care more closely related to its emotional development (Hackman et al., 2010).

Family environments

As noted earlier, the conditions under which families are raising children have changed (Hayes et al., 2010; Li et al., 2008; Moore, 2008; Moore & Skinner, 2010; Richardson & Prior, 2005; Trask, 2010). This is important because family functioning is shaped by these conditions, including factors in the immediate neighbourhood, their residential and relational communities; programs and services; regional, national and global environments; and civil society (Bronfenbrenner, 1979; Bronfenbrenner & Morris, 2006; Hertzman, 2010). Factors that impact upon parents and family will impact upon their children. Reducing inequities in health and development for young children involves reducing those factors that lead to inequities amongst their parents and families.

The most salient features of the family itself are its social and economic resources (Hertzman, 2010). Social resources include parenting skills and education, cultural practices and approaches, intra-familial relations, and the health status of family members. Economic resources include wealth, occupational status and dwelling conditions.

Families who are relatively well resourced are better able to meet the challenges posed by altered social conditions. However, poorly resourced families can find the heightened demands of contemporary living and parenting overwhelming (Barnes et al., 2006a, 2006b; Gallo & Matthews, 2003) – thereby impacting negatively upon the children in those families.

Gaps in family functioning are cumulative: the more advantaged families are initially, the better they are able to capitalise and build on the enhanced opportunities available, so that the gap between them and those unable to do so progressively widens (Rigney, 2010; Social Exclusion Task Force, 2007).

There is also an increase in the numbers of families with multiple and complex needs: as Bromfield et al. (2010) note, such families are no longer a marginal group in service delivery, but have become the primary client group of modern child protection services. These families have 'multiple, chronic and inter-related problems, the constellation of which can result in children's needs being unmet,

and children being at heightened risk of abuse and neglect' (Cleaver et al., 2007; Cleaver et al., 1999). The problems most commonly identified in these families are domestic violence, parental substance abuse and parental mental health problems (Cleaver et al., 2007; Cleaver et al., 1999; Scott, 2009).[10] Families presenting with these problems are often experiencing a range of external stressors (including housing instability, poverty, low education, social isolation and neighbourhood disadvantage), and parents within those families may also be grappling with their own experiences of trauma and victimisation (Bromfield et al., 2010).

Two aspects of family functioning that have a significant impact on child development and family wellbeing are poverty and housing. The experience of sustained poverty during childhood has wide-ranging and long-lasting consequences (Duncan & Magnuson, 2013; Hirsch, 2008; Lamb, 2012; Pavalko & Caputo, 2013; Schoon et al., 2012). Socioeconomic disadvantage in early childhood impacts on health during early childhood and in later childhood, on psychological health and wellbeing in early adulthood, and on educational outcomes in adulthood, and it has enduring influences on health in mid and later life (Béatrice et al., 2012; Blackburn et al., 2013; Duncan et al., 2013; Gibb et al., 2012; Pavalko & Caputo, 2013).

There are a range of possible reasons why family income impacts upon child health in countries where primary health care is essentially 'free' (Khanam et al., 2009). It may result from the correlation between income and the qualities of the immediate environment (e.g. housing) and lifestyle (e.g. diet) and/or other factors correlated with income such as maternal stress (Dowd et al., 2007; Khanam et al., 2009).

A recent Australian study suggests that neither child nutrition nor parental lifestyle can explain the correlation between income and child health in Australia (Khanam et al., 2014). The same study found that parental health – especially the physical and mental health of the mother – appears to be the mechanism by which low family income generates poor child health outcomes in Australia (Khanam et al., 2014). A UK study also noted the significant role played by mothers' health – especially maternal mental health – in the association between income and child health (Propper et al., 2007). Even studies undertaken in the same country, however, provide differing explanations of these mechanisms (Apouey & Geoffard, 2013), therefore further research may be required.

For some outcomes later in life, particularly those related to achievement skills and cognitive development, poverty early in a child's life may be especially harmful. This is because the rapid development of young children's brains during the early years leaves them sensitive (and vulnerable) to environmental conditions (Duncan & Magnuson, 2013). Poor children tend to begin school well behind their more affluent peers, and lose ground during the school years. Children from poor families also go on to complete less schooling, work less and earn less than others (Duncan & Magnuson, 2013). Smoking in adulthood is associated with experiencing socioeconomic disadvantage in childhood, notably due to mediating factors such as cognitive/educational factors, adolescent behaviour and parental and peer smoking (Fergusson et al., 2007).

[10] Children of parents who 'abuse alcohol' and who are known to child protection services in Victoria are significantly more likely to experience multiple incidents of maltreatment, compared to children where other risk factors are present (Laslett et al., 2012).

In regard to the impact of housing upon child and family, there are strong links between various housing variables and child development outcomes, some of which (such as the negative effects of toxicants on various dimensions of child development) are irreversible and continue on into adulthood (Dockery et al., 2010; Harker, 2006; Solari & Mare, 2012). Children living in bad housing conditions (defined by overcrowding, poor condition or unfit housing or being homeless and in temporary accommodation) have up to 25% higher risk of severe ill-health and disability during childhood and early adulthood; an increased risks of meningitis, asthma and slow growth; and an increased risk of suffering mental health problems and problems with behaviour (Harker, 2006; Shepherd et al., 2012a). There is an association between overcrowded housing conditions and preterm delivery (Niedhammer et al., 2012).

Poor quality or insecure housing negatively affects child health and wellbeing in a variety of ways (Foster et al., 2011; Mallett et al., 2011). Children who experience frequent residential moves show poorer rates of academic achievement; higher risks of unintentional injury; higher levels of risk related to obesity and overweight; higher levels of behavioural and emotional problems; increased teenage pregnancy rates; accelerated initiation of illicit drug use; adolescent depression; and reduced continuity of health care (Giles et al., 2013; Hutchings et al., 2013; Jelleyman & Spencer, 2008; Rumbold et al., 2012; Tunstall et al., 2010). Children living in rented (as opposed to owned/mortgaged homes) are more likely to experience unintentional injuries (Pearce et al., 2012).

Housing can impact on children's development and wellbeing through both direct and indirect mechanisms. Housing aspects can exert strong indirect influences on children's development via influences on parental practices, especially for infants and young children who spend most of their time indoors under parental supervision. Managing the needs of children with health problems can be difficult for parents if their housing is inadequate or inappropriate (Koenig, 2007).

Homelessness is particularly detrimental to children's health (McCoy-Roth et al., 2012). Australian studies of children experiencing homelessness (Gibson & Johnstone, 2010; Kirkman et al., 2009, 2010) find that unstable housing has adverse effects on children's sense of security, their mood and behaviour, their physical health and their academic attainments. Children whose families have been affected by homelessness are vulnerable to diminished security, stability, and the chance to become and remain part of a community.

The incidence of insecure housing is unevenly distributed in the Australian population (Foster et al., 2011; Mallett et al., 2011). Lone parents and single people are much more likely than other household types to be living in precarious housing. Children of lone parents are much more vulnerable to precarious housing than those living with two parents. They are nine times more likely to live in unaffordable housing, three times more likely to be in poor-quality dwellings, three times more likely to have experienced a forced move, and 11 times more likely to be living in a rented house. They also have poorer access to services and transport (Mallett et al., 2011).

Physical environment

The nature and quality of the physical environment in which children grow up has a significant impact on their health and development (Evans, 2006; Huby & Bradshaw, 2006; Steuer et al., 2006; Sustainable Development Commission, 2008). Key aspects of the physical environment include

access to parks and green spaces, the nature of the built environment and exposure to environmental toxins.

There is good evidence that access to parks and green spaces is good for health (Louv, 2005, 2011; Sustainable Development Commission, 2008; Wood, 2009). Contact with natural spaces can improve health directly and indirectly (by, for example, encouraging physical activity and social contact) (Sustainable Development Commission, 2008). Access to and use of parks and open space is linked to physical, social and mental health benefits (Louv, 2005, 2011; Pearce et al., 2011; Wood, 2009).

Contact with green spaces has become even more important as a result of changes in the built environment. In contrast to previous generations, today's children are growing up in a world with more structured forms of 'play', smaller backyards and higher density housing (Gleeson, 2006; Hall & Hauck 2007; Wood, 2009). The built environment has become less pedestrian-friendly and more dependent upon cars, and there are reduced opportunities for physical activity. The Victorian Lifestyle and Neighbourhood Environment Study (Kavanagh et al., 2007) found that the nature of the urban environment mattered: walking is more common in areas with longer walking and cycling paths, more destinations to walk to (such as shops, schools, parks, religious institutions) and more pedestrian crossings. Built environments – especially in urban areas – can either promote or discourage physical activity amongst children (Sandercock et al., 2010; Trapp et al., 2011) and in some disadvantaged neighbourhoods there is a high density of fast food outlets, which contributes to the 'obesogenic' nature of these environments (Fraser et al., 2012; Smoyer-Tomic et al., 2008).

Another key feature of the physical environment is exposure to environmental toxins. Such exposure is now ubiquitous: toxic chemicals from everyday products contaminate the bodies of every person in developed nations, including newborn babies and young children (Baker, 2008; Curtis and Wilding, 2007; Lloyd-Smith & Sheffield-Brotherton, 2008; Paul, 2010). The main sources of these contaminations are not the more obvious sources such as crop sprays, industrial waste and air pollution, but the hundreds of common products that ordinary people use every day, such as shower curtains, water bottles, baby bottles, toys, shampoo, cosmetics, couch cushions and computers. From all of these products toxic chemical ingredients leach out and affect our bodies (Baker, 2008; Cribb, 2014).

What is most concerning about this phenomenon is that the vast majority of the tens of thousands of chemicals used in the production of goods and in construction have either never been tested for their impact on human health and development, or only tested on adults. This is despite the fact that the younger the child, the more vulnerable they are to the effects of environmental toxins (International Scientific Committee of the International Conference on Fetal Programming and Developmental Toxicity, 2007; Paul, 2010; Shabecoff & Shabecoff, 2008). Most damaging of all is exposure in the womb – the placenta cannot protect the foetus from toxins that are knowingly or otherwise ingested by the mother (Martin & Dombrowski, 2008; Paul, 2010).

While all people in modern societies are affected by these changed features of the physical environment, some are more affected than others. People living in low SES communities are more likely to be exposed to toxic or otherwise hazardous phenomena such as wastes, air pollutants, poor water quality, excessive noise, residential crowding or poor housing quality (Currie, 2011; Evans & Katrowitz, 2002).

Children who grow up in disadvantaged neighbourhoods have a range of poorer outcomes when compared to children growing up in more affluential areas. Living in a low SES community has been associated with the following child health-related factors: poorer quality sleep (Biggs et al., 2013); the risk of very preterm birth (Bonet et al., 2013); higher rates of maternal smoking during pregnancy (Phung et al., 2003a); poorer rates of breastfeeding (Taylor et al., 2009); a higher risk of Sudden Infant Death Syndrome (Highet & Goldwater, 2013); higher levels of infant mortality (Hollowell et al., 2011); a great likelihood of being suspended from school (Hemphill et al., 2010); and a higher likelihood of consuming soft drinks on a regular basis (Pabayo et al., 2012). It is important to note that the term 'disadvantaged neighbourhoods' undermines the diversity of those neighbourhoods – obviously, some disadvantaged neighbourhoods are more deprived than others and each will have different strengths and challenges (Barnes et al., 2005).

Social participation

Various features of residential communities influence the development of young children (Hanson et al., 2011b; Kawachi & Berkman, 2003). These include the socioeconomic status of the community, social capital and service provision. It is not only the physical characteristics of a community that impact upon the health of residents, but also less tangible factors such as community cohesion (Pearson et al., 2013).

Socioeconomic inequalities amongst residential communities are associated with inequities in children's development beyond those contributed by child/family characteristics (Hanson et al., 2011b). However, children from low SES families living in economically mixed neighbourhoods often do better in their development than low SES children living in poor neighbourhoods (Kohen et al., 2002). Access to high quality services and facilities (such as recreation, child care, medical, transportation, food markets and opportunities for employment) often varies according to community socioeconomic status (Leventhal & Brooks-Gunn, 2000).

Child development is also influenced by the quality of community social capital – including sense of safety, norms of reciprocity, social engagement, participation, cohesion and trust (Hertzman, 2010). Countries with high rates of 'social trust' (i.e. the belief that others will not deliberably harm us and will look after our interests) are also countries that have income equality (Delhey & Newton, 2005). However, living in an advantaged area does not automatically ensure access to high levels of social capital for children (Browne-Yung et al., 2013). As a result of economic and social change, many communities are more socially fragmented, with many becoming little more than dormitory suburbs. There is less trust and reciprocity, and more concerns about personal safety. Decreasing levels of trust are significant in any society, as both social and institutional trust are linked to subjective wellbeing (Rözer & Kraaykamp, 2013). The fragmentation of communities increases the risk that some people find themselves without any communities to which they feel they belong (Hughes et al., 2007; Leigh, 2010). Social isolation can have negative impacts upon parents and has been associated with child maltreatment (Wandersman & Nation, 1998).

Poor social cohesion, social capital and social support have all been associated with increased rates of postnatal maternal depressive symptoms (Eastwood et al., 2014; Surkan et al., 2006). Social capital has been found to impact upon parents' rating of their child's health in disadvantaged Victorian communities (Dunt et al., 2011), as well as, potentially, to play a role in the actual health gradient that exists amongst children (Vyncke et al., 2013).

Poor social support is associated with poorer self-reported maternal health amongst disadvantaged women with young children (Morgan & Eastwood, 2014), and with psychological distress within the general population, regardless of their income level (Caron & Liu, 2011). Social capital is also associated with smoking cessation in the general population, whereas continual lack of social participation is associated with smoking initiation (Giordano & Lindström, 2011). An association has also been identified between living alone and continuing to smoke during pregnancy (Grangé et al., 2005). Low social support is also associated with a lower likelihood of decreased concurrent drinking and smoking during pregnancy (Powers et al., 2013).

Positive cross-cultural relationships within communities can make a positive contribution to children's development (Clark et al., 2010). For children who have recently migrated, living in a neighbourhood with a higher concentration of immigrants is associated with lower rates of emotional-behavioural problems, whereas the opposite is true for recently migrated children living in neighbourhoods with a low concentration of immigrants (Georgiades et al., 2007).

Health-care and other services

The services and service systems that support children and their families have not changed significantly over the past 50 years, and are struggling to meet the needs of the most disadvantaged groups. As a result of the difficulties that the current system of services is experiencing, many children are not receiving the additional help they need (Sawyer et al., 2000; Sayal, 2006).

There is evidence that a minority of vulnerable families make little or no use of existing services and are hard to engage (Carbone et al., 2004; Centre for Community Child Health, 2010).[11] It is often those with the greatest need that are least likely to be able to access available services (Fram, 2003; Ghate & Hazel, 2002; Offord, 1987; Watson et al., 2005). In fact, lack of access to resources is one of the possible reasons for the persistence of health inequalities in modern welfare states (Mackenbach, 2012).

Even in countries with universal health services, there are inequalities of access to health care amongst children and inequitable outcomes in health (Burton, 2003; Mattson et al., 2012; Teitler et al., 2007). In Australia, for example, the rates of health service utilisation by mothers of Indigenous infants are lower than the rates of utilisation of those services by mothers of non-Indigenous infants even though research shows that Indigenous parents are more likely to perceive their infant as having an unmet health-care need than non-Indigenous parents (Ou et al., 2011; Ou et al., 2012). Access to dental care in Australia has a strong socioeconomic dimension because the universal health-care system excludes dental care (Schwarz, 2006).

There is also a tendency for disadvantaged areas to receive fewer services, another variation on the inverse care law for health. For example, there is a marked tendency for the levels of child welfare

[11] A study was undertaken in the UK which investigated the influence of ethnicity, socioeconomic position and gender on an individual's (i.e. not limited to families with children) perception of the need and urgency for seeking health care. The study found that survey participants who were Black, from lower SES groups and women were as likely to report immediate health-care seeking for a number of hypothetical symptoms as participants who were White, from higher SES groups and men. The authors concluded that it was not a failure to self-refer which results in inequalities in access to health care (Adamson et al., 2003). We did not identify any studies that tested this hypothesis amongst parents of young children in regard to health or other relevant services.

interventions to fall as the deprivation of the local neighbourhoods rises, so that those most in need get least help (Bywaters et al., 2014).

The issue of access to health services is a complicated one. In an attempt to clarify the concept, Levesque et al. (2013) define access as the opportunity to reach and obtain appropriate health-care services in situations of perceived need for care. Access results from the interface between the characteristics of persons, households, social and physical environments on the one hand, and the characteristics of health systems, organisations and providers on the other. Therefore, access involves people being able to identify health-care needs, to seek health-care services, to reach the health-care resources, to obtain or use health-care services, and to actually be offered services appropriate to the needs for care (Levesque et al., 2013).

The knowledge, attitudes and behaviours of health professionals impact directly and indirectly upon children's health. For example, the views of health professionals towards breastfeeding have an impact upon women's decisions to initiate and continue breastfeeding (Clifford & McIntyre, 2008; Tennant et al., 2006). Doctors' lack of confidence regarding how to resolve breastfeeding problems can be a barrier to them promoting breastfeeding amongst their patients (Clifford & McIntyre, 2008; Finneran & Murphy, 2004). The attitudes of health practitioners towards health inequities can potentially reinforce inequity (Furler et al., 2005). For example, if health professionals make assumptions regarding the ability of people from low SES backgrounds to make changes to their lifestyle, they may be less likely to engage them in lifestyle counselling (Furler et al., 2005). As a result, those patients miss out on the opportunity to benefit from that form of treatment (Furler et al., 2005).

Primary health-care services in Australia respond to the issue of equity of access to services in a range of ways, including: taking actions to improve equitable access to their service, and advocating for action on the social determinants of health inequities (Freeman et al., 2011). Yet, many families find accessing health and other services a challenge. This is significant because children from families who have poor social supports and make limited or no use of early child and family services are at increased risk of poor health and developmental outcomes.

For example: vulnerable families may have difficulties with transport and therefore have difficulties getting to a service (Carbone et al., 2004; Koenig, 2007; Leurer, 2011; Ou et al., 2011); some families may be intimidated by the presence of more confident families attending services or they may not know about available services (Carbone et al., 2004); asylum-seeker families and families in immigrant detention typically have limited access to health and other services for children, despite the fact that many have multiple and complex needs (Correa-Velez et al., 2008; Gagnon et al., 2006; Lorek et al., 2009; Shields et al., 2004); and parents who are struggling to secure basic essentials for children (i.e. food, housing) may not have the time or the energy to access services that they, or the children, need (Currie, 2005).

Issues relating to ethnicity and cultural and linguistic background can also impact upon how families access and experience health services. Families from culturally and linguistically diverse (CALD) backgrounds may be reluctant, or feel alienated, uncomfortable or disrespected when interacting with health professionals; similarly, health professionals may struggle to identify the needs of families from CALD backgrounds, or there may be conflicting expectations between the parent and the health professional (Arlidge et al., 2009; Bolitho & Huntington, 2006; Edge, 2008, 2010, 2011;

Henderson & Kendall, 2011; Hoang et al., 2009; Smith et al., 2006; Towle et al., 2006). Furthermore, evidence from the US indicates that children from CALD backgrounds receive a lower quality of health care, which may be a reflection of individual health providers or a reflection of the health-care system itself (Beal, 2004).

For non-English-speaking families, language barriers can be an issue during health consultations, and those families who need an interpreter will not always have access to one or may prefer to use an 'ad hoc' interpreter which can be problematic within a health setting (Clark et al., 2014; Kazzi & Cooper, 2003; Parvin et al., 2004; Sutton et al., 2007).[12]

Problematic values, ideologies and structures within health-care service systems have traditionally disenfranchised Indigenous people in health-care interactions and relationships – a circumstance which Smith et al. (2006), referring to the Canadian context, claims has 'created a dynamic in health care in which Aboriginal people may avoid health-care services or use services only at the point of crisis' (p. E28). One study undertaken in the ACT found that Indigenous children and children born outside of Australia had less equity of access to their nominated GP than other children (Kljakovic et al., 2011). Evidence from New Zealand indicates that Maori and Pacific Islander children who have moderate to severe asthma no longer have barriers to accessing GPs but now appear to face other challenges, including poor access to routine and preventative care, and poor asthma control (Buetow et al., 2004).

In Australia, women who have a higher level of stress and adversity during pregnancy report higher rates of discrimination in health-care settings during pregnancy (Brown et al., 2011). Children from families who have poor social supports and make limited or no use of early child and family services are at increased risk of poor health and developmental outcomes.

Another major problem with the current service system is that the planning and delivery of services continues to be heavily segmented, with government departments and their funding streams operating autonomously as 'silos', making it difficult to conduct the joint planning needed to develop and implement a cohesive approach to supporting families of young children, especially those with multiple and complex needs (CCCH, 2006; Dowdell et al., 2009; Jones et al., 2010; Moore, 2008; Wear, 2007).

The result of a poorly integrated service system is service-system inefficiency, and, for families, difficulties navigating the system and getting the support they need: often those families who are most in need of support are the least likely to receive it (Fram, 2003; Ghate & Hazel, 2002). Service integration is recognised as a valuable method for meeting the holistic needs of children and families, and reducing disadvantage (Wong & Press, 2012). Professionals who specialise in a specifc area (e.g. adult mental health) may have limited skills working with children, or working with parents on issues relating to their children (Maybery & Reupert, 2006), thereby highlighting the importance of a more holistic approach to working with families.

It is important to note that although health services have a key role to play in reducing health inequalities in countries such as Australia, the idea that health inequalities are a 'medical issue' that

[12] Canadian research suggests that amongst recent migrant families with young children, the language spoken by staff plays a key role in their decision regarding which health services to utilise (Leduc & Proulx, 2004).

can be addressed solely by modifying the health system or the way in which health services are delivered is problematic (Asthana et al., 2013). This approach undermines the macro processes of social inequality and collective (rather than individual) responsibilities for health (Asthana et al., 2013).

Individual health-related behaviours and attitudes

The health and wellbeing of children are strongly influenced by the knowledge, attitudes and behaviours of their parents, caregivers and family. During the early years especially, children cannot exercise personal responsibility for the vast majority of factors that will impact upon their health and development, such as their diet, the quality of care they receive, how often they are read to or whether they live with a parent who smokes (Law et al., 2012; Peters et al., 2013). As Waldfogel (2006) notes, 'parents have a direct influence on their children's development and also … an indirect influence, through the environments they expose their children to' (p. 21). Therefore, even though children's growing knowledge, behaviour and attitudes towards factors such as dietary intake is important – and can be influenced as a means of improving their overall health (see for example Ellis & Ellis, 2007; Newell et al., 2004) – what parents know, think and do has a significant impact upon children's health and wellbeing.

A parent's knowledge, attitudes and behaviours also determine their 'parenting style', which creates an emotional context or 'climate' for the child. Whereas parenting practices pertain to what parents actually do in child-rearing situations (e.g. hit the child, hug the child), parenting styles are viewed 'as attitudes toward the child that are communicated to the child and create an emotional climate in which parents' behaviour is expressed' (Rodrigo et al., 2014, p. 2178).

Positive developmental outcomes for children depend upon an emotional climate that is characterised by responsiveness, warmth, sensitivity, acceptance, predictability, consistency and a lack of harsh, punitive forms of discipline (Teti & Candelaria, 2002). Although there are cultural differences in actual parenting practices, the factors that constitute a positive 'emotional climate' for children are associated across all cultures with positive child outcomes (Richter, 2004). The best outcome is a 'secure' child-parent attachment whereby the child views the parent as a 'secure base from which to explore' (Berlin et al., 2005). Parenting styles that are characterised by hostility, dismissiveness or disengagement typically lead to poor attachment outcomes and, although not deterministic, these 'insecure' forms of attachment will make it harder for children to develop healthy relationships with others in the future (Waldfogel, 2006).

A parent's 'internal working model', that is, their internal representation of themselves, others and their relationships, drive parenting behaviours and, thereby, child-parent attachment (Berlin et al., 2005). However, a range of external factors impact upon parents' internal working models, parenting behaviours and child-parent attachment, including stress, marital quality and social support (Berlin et al., 2005).

When the specific characteristics of parents are viewed as explanations for parenting difficulties – without acknowledgement of the range of external factors that impact upon parenting – there is a risk of 'blaming the victim' (Gowen & Nebrig, 2002); however, the impact of parents' knowledge, attitudes and behaviours – upon children's development, health and wellbeing – cannot, and should not, be underestimated.

Knowledge

It is hypothesised that parent knowledge impacts upon child outcomes via a 'mechanism of change' whereby parenting knowledge leads to attitude change, leading to behaviour change, leading, ultimately, to a change in child outcomes (Moran et al., 2004). There is some evidence to support the links in this hypothesis (Moran et al., 2004). For example, mothers' knowledge regarding child development is associated with the quality of the home environment and the quality of the home environment is associated with children's cognitive outcomes (Benasich & Brooks-Gunn, 1996). One research study demonstrated that mothers who have high levels of parental self-efficacy and a good knowledge of child development are more sensitive to infants in play interactions, when compared to mothers who have high levels of parental self-efficacy but a poor knowledge of child development (Hess et al., 2004). Furthermore, there is an association between mothers' knowledge of nutrition and children's knowledge of nutrition (Zarnowiecki et al., 2012), children's food intake (Campbell et al., 2013; Hendrie et al., 2013) and children's food safety behaviours (Nichols et al., 2012).

Very few studies provide evidence to support the claim that interventions targeting parent knowledge also lead to *actual behaviour change* for either parents or children (Moran et al., 2004). In some cases parental knowledge of a specific risk factor to children does not impact upon parent behaviour. For example, research undertaken in the US indicates that women's knowledge of the risks of smoking during pregnancy is not related to their personal smoking behaviour (Bull, 2003). Studies in the UK have suggested otherwise: Coleman (2004) found a high correlation between knowledge of risks and change of behaviour – 80% of pregnant women who quit smoking during pregnancy believe that smoking is 'very dangerous' to their baby, while of those who continue to smoke, only 30% share the same belief. In other words, enhancing parent knowledge may not necessarily lead to behaviour change; however, we cannot be certain regarding the extent to which knowledge impacts upon particular behaviours, and how that process occurs.

Parents' and caregivers' knowledge of health issues and health services can also impact upon the health and wellbeing of their children. For example, vulnerable families may not have the same level of access to health information than other families (see, for example, Claas et al., 2011 and Sword & Watt, 2005). Not knowing that particular services exist – or not knowing what those services provide, or the role of specific health professionals – is a key barrier for families accessing services and receiving appropriate support (Carbone et al., 2004; Carolan & Cassar, 2007; Leuer et al., 2011), especially for migrants and families from non-English-speaking backgrounds (Boerleider et al., 2013; Clark et al., 2014; Parvin et al., 2004). Even migrant groups who are well established in a country can experience these difficulties (Henderson & Kendall, 2011). Low levels of literacy in the general population can impede individuals' capacity to process and understand health information (Chiarelli & Edwards, 2006).

Lack of knowledge of health issues or health services may impact upon children's health and wellbeing by limiting the opportunity for preventative health actions (e.g. SIDS prevention strategies, see Kemp et al., 2006; folic acid supplements, see Tam et al., 2005) or restricting their access to services which may, for example, prevent problems from occurring (e.g. health checks and assessments), or support their development (e.g. early childhood education and care programs).

At a practical level, improving parents' knowledge of factors relating to child's health will depend upon whether the available information is understandable – conflicting advice regarding issues such

as breastfeeding can have a detrimental impact upon women's health behaviours (Arora et al., 2012a, 2013; Clifford & McIntyre, 2008). Even when parents have the requisite knowledge, however, they may face barriers in accessing services (Carbone et al., 2004; Daly et al., 2010; Sutton et al., 2007) and taking preventative health measures that benefit their children (e.g. cost may be a barrier to using optimal child restraints in cars, see Brown et al., 2012).

Attitudes

Child-rearing attitudes – that is, the thinking that influences whether an individual acts in a positive or negative way towards a child – is a good predictor of parenting behaviour because it indicates the nature of parent-child interactions and the quality of the parent-child relationship (Grusec, 2006). This is important because parent-child interactions and the quality of the parent-child relationship have a profound effect upon children's development: relationships are the medium through which young children learn the skills that enable them to become fully participating members of society (Gerhardt, 2004; Reis et al., 2000; Richter, 2004; Shonkoff & Phillips, 2000; Siegel, 1999).

Child-rearing attitudes have direct and indirect effects upon the health and wellbeing of children. For example, a UK study found that mothers' non-authoritarian child-rearing attitudes when their children were aged five had a protective effect against psychological distress and low self-confidence amongst daughters who had experienced significant material disadvantage in childhood (Flouri, 2004).

Confidence in parenting appears to be especially important. For example:

- parents who lack confidence in their parenting skills are more likely to give up on parenting tasks when they become too difficult (Teti & Gelfand, 1991), and a low sense of parenting self-efficacy leads to inconsistent parenting styles (Moran et al., 2004);
- parents with low levels of knowledge regarding effective parenting strategies, and with low levels of parenting confidence, may be at a greater risk of dysfunctional parenting (Morawska et al., 2009);
- women with more self-efficacious parenting styles report significantly fewer problems with their infants' temperaments than women with less self-efficacious parenting styles (Prady et al., 2014);
- a parent's belief that they can implement regular tooth-brushing into their child's daily routine is one of the most important predictors of childhood caries (Pine et al., 2004); and
- a parent's perception of their ability to manage their children's behaviour is a predictor of eating-related behaviours (e.g. cooking from scratch, sitting down for a meal), and these eating-related behaviours are associated with the *quality* of children's diets (Swanson et al., 2011).

It is important to note that parent confidence can change over time; for example, parents' self-efficacy in regard to limiting unhealthy foods and limiting screen-time tends to decline during the first few years of their children's lives (Campbell et al., 2010).

Child-rearing attitudes are influenced by a range of factors, including an adult's own experiences of being parented when they were a child; for example, young adults who experienced insecure attachments in their own childhood express more negative views of parenthood and parent-child relationships (Gowen & Nebrig, 2002). Child-rearing attitudes are also influenced by parents'

perceptions of, and aspirations for, their child/ren (Katinen et al., 1999). For example, the perceptions of parents who have a child with asthma regarding the risk of smoking to their child are associated with their motivation to quit (Halterman et al., 2010). Factors such as temperament, gender and physical resemblance towards other family members can impact upon a parent's view towards their children (Gowen & Nebrig, 2002).

Social norms and parents' beliefs regarding the general social acceptability of issues pertaining to children (e.g. children's eating habits) also influence their attitudes (Lally et al., 2012). The attitudes of parents regarding the availability and quality of fruit and vegetables in their local community – regardless of their socioeconomic background – impact upon the perception regarding the affordability of fruit and vegetables (Williams et al., 2012). The attitudes of people within parents' social networks can also impact upon parental attitudes. For example, when women's social networks are positive about breastfeeding, they are also more likely to have a positive attitude towards breastfeeding amongst pregnant women (Clifford & McIntyre, 2008; Dungy et al., 2008). This is important, as the attitudes of pregnant women towards breastfeeding are associated with actual breastfeeding when their child is born (Dungy et al., 2008).

Cultural factors also inform child-rearing attitudes and attitudes towards parenting (Kruske et al., 2012; Rosenthal, 2000; Ussher et al., 2012). For example, ATSI parents may have differing views regarding the responsibilities of children towards extended family (Kruske et al., 2012).

Parent and caregiver attitudes towards other factors can also influence child health and development. For example, another barrier that limits the extent to which families are willing to utilise services is distrust (Carbone et al., 2004). The children of women who are cautious about engaging with universal child health-care services may miss out on developmental screening and referral to other services for any emerging problems (Harvey et al., 2012). Parents may distrust services because of their own perceptions of, or experiences with, services – or the perceptions of or experiences of their family or community – which have informed their attitudes towards seeking help from external, formal sources. As noted previously, these barriers impact upon children's health and wellbeing by restricting their access to services which may help them, their parents or their families.

Behaviours

Parent behaviour has immediate effects on child development, whereas other behaviours – such as the general nature of mother-child interactions – will manifest over time (Gutman & Feinstein, 2007). The way a parent behaves towards their child has been shown to impact upon a wide range of child outcomes (Gutman & Feinstein, 2007).

Parenting behaviour stems from current events and from parents' 'internal working models of self, others, and relationships' (Gowen & Nebrig, 2002). There is an association between these internal working models and parenting behaviour (Cohn; Crowell; Ward in Adam et al., 2004). For example, mothers with secure attachments in adulthood show more warmth and responsiveness when assisting their children with a problem-solving task, whereas mothers with insecure attachments in adulthood are less helpful, less supportive and display a cool, controlling, task-focused style (Crowell & Feldman, 1988 in Adam et al., 2004).

Parents' emotional states and their overall mental health also impact upon parent behaviour (Downey & Coyne, 1990; Zelkowitz et al., 2009). Parents who are depressed display fewer positive and more negative facial expressions and lower levels of warmth, affection and sensitivity (Adam et al., 2004).

Parent behaviour also clearly impacts upon children's dietary intake. There is some evidence to indicate that parental diet-control practices (e.g. controlling snack intake), family attitudes towards food and the quality of young children's diets are related to sociodemographic factors such as parent age, maternal education levels, ethnic background and community-level disadvantage (Brown et al., 2008; Clark et al., 2008; Green et al., 2003; Northstone & Emmett, 2005, 2013; Rogers & Emmett, 2003; Santorelli et al., 2014; Saxton et al., 2009). One hypothesis as to why there is a socioeconomic gradient in overweight amongst children is that children from higher socioeconomic backgrounds are given more encouragement to eat healthy food and participate in physical activity (Simen-Kapeu & Veugelers, 2010).

The intergenerational transmission of values within families also impact upon children's eating habits and parents' behaviours regarding their children's eating habits (Green et al., 2003; Roden, 2003). It is not only how parents behave in regard to their children's diet, but also their own dietary practices that impact upon their children's health. Maternal consumption of fruit, vegetables and 'non-core' foods appear to have an especially significant impact upon young children's eating habits (Khanam et al., 2009; McGowan et al., 2012) and parental consumption of fruit and vegetables is associated with their children's intake of both (Cooke et al., 2004; Wyse et al., 2011). The intergenerational transmission of views towards breastfeeding also impacts upon women's breastfeeding behaviours (Clifford & McIntyre, 2008).

There is some evidence to suggest that socioeconomic factors impact upon parenting behaviour. Poor housing has also been linked to poorer parenting outcomes (Gridley et al., 2013) and mothers with higher levels of education and higher family incomes provide more stimulation and teaching in the home environment (Gutman & Feinstein, 2007). In Australia, households with university-educated parents spend more time with children in physical care and other developmental-oriented activities on a day-to-day basis than other households (Craig, 2006). In relation to the latter point, however, evidence from the Sure Start initiative in the UK suggests that 'what parents do [in the home environment] is more important than what they are' (Sylva et al., 2003, p. 2). In other words, how parents behave in the home environment – the actual practical activities they undertake with children – is more important to their children's outcomes than their socioeconomic background. Furthermore, there is some evidence to suggest that the correlation between childhood poverty and poor health is ameliorated by maternal health behaviours – in other words, maternal health behaviours matter more to child health than family income – although other studies negate those claims (Apouey & Geoffard, 2013). In Australia, parental education does not appear to have a significant impact upon child health (Khanam et al., 2009).

Parental attitudes and behaviours are also shaped by cultural background (Agboado et al., 2010; Cowley-Malcolm et al., 2009; Gallegos et al., 2013; Griffiths et al., 2005; Prady et al., 2014; Raleigh et al., 2010). For example, in some cases, women from specific CALD backgrounds living in countries such as the UK are more likely to initiate and continue breastfeeding than women from non-CALD backgrounds (Griffiths et al., 2005; Raleigh et al., 2010; Santorelli et al., 2014). These findings are

backed by a study undertaken in south-western Sydney which found that being Australian-born increased the risk of *not* breastfeeding (Yeoh et al., 2007).

Cultural background can also impact upon how parents interact with medical professionals who treat their children (e.g. level of engagement, active seeking of information) (Cox et al., 2012). Cultural groups may have different behaviours regarding health and health services in different national contexts. For example, Hmong refugees in Australia appear to be more likely to access the mainstream health-care system than Hmong refuges in the US (Wang, 2005).

It is important to note that parent behaviour is not solely dependent upon factors that impact upon the parent. The way a parent behaves can also be affected by what is happening with the child (e.g. the child's temperament, the child's own behaviour) but these effects are much smaller than the effects of parenting on the child (Gutman & Feinstein, 2007).

As noted previously, abusive and neglectful parenting behaviours have significant short- and long-term negative effects upon children (Cashmore & Shakel, 2013; McLeod et al., 2014; Macmillan, 2009; Norman et al., 2012; Reeve & van Gool, 2013; Zielinski, 2009). The younger the child and the longer the child is exposed to abuse and neglect, the more harmful the experience will be to the child. Apart from sexual abuse, children are most likely to be abused or neglected by parents and/or caregivers (Lamont, 2011).

Summary

Dramatic societal changes over the past few decades have resulted in changes for and within families. The conditions under which families are raising children have changed. As the gap between the most advantaged and the most disadvantaged families grows wider in Australia, so too will the gap between the most advantaged and most disadvantaged children, leading to unfair and avoidable differences in development.

As a society, we are facing a range of 'wicked' problems that are complex and intractable. A range of policies to ensure better outcomes for young children and their families have been proposed and developed in Australia, but at times differing ideological views regarding children – and who is responsible for them – have complicated the process of policy implementation.

The daily living conditions that young children experience – especially their 'relational' environments – have a significant impact upon their development. Parent knowledge, attitudes and behaviour have a profound impact upon the nature of the parent-child relationship and, as such, upon the child. Yet the knowledge, attitudes and behaviours of parents are also profoundly influenced by daily living conditions, the sociopolitical context, social norms and values, and their own experiences of childhood.

In short, the factors that cause inequity during early childhood are complex, multifaceted, multi-sectorial and cross-generational. In the next section of this report, we will explore the relationship between health and development inequities during the early years and subsequent health outcomes.

4. What is the relationship between health and development inequities during the early years and subsequent health outcomes?

This section will focus upon the relationship between inequities during the early years and health outcomes in adolescence and adulthood. This section will also look at *how* what happens during the early years impacts upon subsequent outcomes.

How does what happens during the early years impact upon subsequent health outcomes?

There is now strong evidence demonstrating the ways in which life-long effects of early experiences impact on the later achievements, social adjustments, mental health, physical health and longevity of individuals (National Scientific Council on the Developing Child, 2010; Currie & Rossin-Slater, 2014; Field, 2010; National Scientific Council on the Developing Child, 2007; Shonkoff & Phillips, 2000; Shonkoff et al., 2009).

Three key ways in which early childhood experiences can have long-term effects have been identified (Boivin & Hertzman, 2012; Hertzman & Power, 2003; Keating & Hertzman, 1999; Shonkoff et al., 2009):

- biological embedding;
- a process of accumulation; and
- developmental escalations of risk over time.

Although they are distinguishable from one another, these pathways are not mutually exclusive. Each is described further below.

Biological embedding

Biological embedding refers to a developmental process whereby prenatal and early childhood experiences influence physiological and neurological development in ways that have long-term consequences (Gluckman et al., 2010; Hertzman, 1999; Hertzman & Boyce, 2010). This process is an example of the broader biological mechanism of *developmental plasticity* by which organisms, in response to cues such as nutrition or hormones, adapt their phenotype[13] to their particular environment (Gluckman et al., 2010, 2011; Bateson & Gluckman, 2012; Low et al., 2012). Plasticity is very demanding of energy, and hence in general is limited to an early phase of development because re-engineering the body after the phenotype has been fully developed is costly.

Experimental and clinical evidence suggests that the plastic phase in humans extends from conception through the weaning period, which in pre-modern times extended at least for the first 2-3 postnatal years (Gluckman et al., 2010). Early biological plasticity helps to explain why harmful experiences can have a more profound impact on the youngest children, whose immature systems are in their formative stages, than on older children and adults, whose biological and behavioural systems have become consolidated. On the other hand, early plasticity also helps explain the remarkable pace of early-developing capacities, as the brain and other biological systems rapidly

[13] The phenotype is the observable outcome of the interaction between the genotype and the environment.

mature. Early biological plasticity, therefore, is a double-edged sword; it helps to explain why young children are affected so significantly by their experiences, for good or ill (Thompson, 2014).

Prenatal biological embedding

Until relatively recently, the foetus was thought to be totally protected in the womb from external influences, including what the mother ate or drank or experienced (Paul, 2010). Over the past few decades, this view has been challenged by a series of revelations regarding the impact of alcohol, medications and traumatic events on foetal development. There is now strong evidence that the biological and neurological development of an individual can be shaped by environmental conditions in the womb (Coe & Lubach, 2008; Gluckman & Hanson, 2005; Martin & Dombrowski, 2008; Paul, 2010; Robinson, 2013).

According to the *developmental origins of health and disease* (DOHaD) hypothesis (Gluckman & Hanson, 2004; Heindel, 2007), the foetus makes adaptations based upon the nutritional and hormonal signals that cross the placenta. If the conditions are suboptimal, these adaptations can result in permanent alteration of the structure, physiology and metabolism of the offspring, thus laying a physiological basis for adult-onset disease (Gluckman et al., 2010). This kind of prenatal programming has long-lasting effects on later health (cardiovascular disease, type-2 diabetes, obesity and metabolic syndrome) and fertility (Chadio & Kotsampasi, 2014; Godfrey et al., 2010; Hanson et al., 2011a).

These adaptations may be divided into those for immediate benefit and those aimed at prediction of a future environment. Gluckman and colleagues call the latter *predictive adaptive responses* (Bateson et al., 2014; Gluckman & Hanson, 2005; Gluckman et al., 2009). They involve the foetus using the available information to make a prediction about what kind of world it will be born into, and adjusting its phenotype in anticipation. When the predictions are accurate, the changes made help the infant to adapt positively to the particular world they are born into, but if there is a mismatch between the predicted and the actual futures, then the adaptation is suboptimal and the outcome is disease (Gluckman & Hanson, 2005; Gluckman et al., 2009).

There are various reasons why the prenatal and postnatal environments may differ. The mother's circumstances may change significantly, for better or worse. In some cases, dramatic social and environmental upheavals, such as wars and droughts, may be involved. Another factor that can make accurate prediction difficult is that the modern world is very different for much of the world's population from that in which humans evolved, especially in relation to lifestyle, longevity, risk of infectious disease and nutrition. Moreover, these aspects of the environment can change very rapidly. They have done so within a generation in the developed world, with major changes in the sources of food, with migration, and with socioeconomic improvement in the developing world. The likelihood of a mismatch developing between the environment anticipated during development and the actual environment encountered later is thus greater. Human phenotypes are increasingly likely to be mismatched to the contemporary world (Gibson, 2009; Gluckman & Hanson, 2006; Gluckman et al., 2010).

The two forms of prenatal adaptation about which most is known concern nutritional levels and stress levels. In the case of nutrition, the foetus uses the nutritional input from its mother to anticipate the kind of nutritional world it will be born into, and adjusts its phenotype accordingly.

There is good evidence that long-term health suffers if there is a significant mismatch between the prenatal and postnatal environments. For instance, children provided with sufficient nutrition after near-starvation in utero have been shown to have an increased risk of developing metabolic diseases (Gluckman et al., 2005). Unbalanced maternal diet or body composition, ranging from poor to rich environments, adversely influences the offspring's response to later challenges such as an obesogenic diet or physical inactivity, increasing the risk of disease (Godfrey et al., 2010).

In the case of stress levels, the foetus is sensitive to hormonal and other physiological indicators of maternal stress, and heightened exposure to stress in the womb is associated with greater reactivity to stress after birth, as well as longer-term problems with emotional and cognitive functioning. In general, prenatal stress exposure makes children more reactive to challenge and threat (Thompson, 2014).

The effects of stress depend upon timing. Elevated levels of maternal cortisol (an indicator of stress) early in gestation are associated with a slower rate of development in infants over the first year of life and lower mental development scores at 12 months. Elevated levels of maternal cortisol late in gestation, however, are associated with accelerated cognitive development and higher scores at 12 months (Davis & Sandman, 2010).

Predictive adaptive responses are advantageous when the prediction is accurate, that is, when the postnatal environment matches the prenatal environment. In the case of predictions about stress, this is true even when the environments are stressful or hostile. A study by Sandman et al. (2012) examined the consequences of prenatal and postnatal exposure to adversity for infant development. They found that, when mothers experienced matching levels of depressive symptoms during and after pregnancy, their infants showed increased motor and mental development during the first year of life, even when the levels of symptoms were relatively high and the prenatal and postnatal environments were unfavourable. By contrast, the infants of mothers who were depressed in pregnancy but had normal mental health after the birth did not benefit from the improvement, but were relatively delayed in their mental and motor functions. These counterintuitive findings suggests that continuity between the prenatal and the postnatal environments prepares the foetus for postnatal life and that this preparation confers an advantage in critical survival functions during early development (Sandman et al., 2012).

These effects are now believed to be mediated by *epigenetic changes* (Bilbo & Schwartz, 2012; Denburg & Danemen, 2010; Hertzman & Boyce, 2010; Szyf et al., 2007, 2008). These involve changes in gene function without alterations to the DNA sequence that occur as a result of interactions with the environment (Carey, 2011; Duncan et al., 2014; Francis, 2011). Epigenetic effects are adaptations to environmental experiences and therefore are neither good nor bad in themselves. They only become bad if the ongoing environment changes, and the patterns that have been established are maladaptive in the new environment. There is now evidence that epigenetic changes may be inherited and so contribute to non-genomic transmission of disease risk across generations (Gluckman et al., 2010, 2011; Hanson et al., 2011a; Low et al., 2012). Thus, the long-term consequences of adverse conditions during early development may not be limited to one generation, but may lead to poor health in the generations to follow, even if these individuals develop in normal conditions themselves (Roseboom & Watson, 2012). For example, the diet of a

pregnant mother may affect the development and disease risk of her children and even her grandchildren.

Epigenetic changes have been implicated in the development of a wide range of disorders, including autism spectrum disorders (Schanen, 2006) and cognitive disorders (Graff & Mansuy, 2009), and may be precipitated by a wide range of exposures and experiences. Early-life exposures such as maternal under- or overnutrition and neonatal over feeding affect satiety, food preference, muscle mass and insulin resistance in the offspring. These changes, accompanied by modulations in body composition and cardiovascular and metabolic function, are associated with alterations in the offspring's epigenetic state (Low et al., 2012; Vaiserman, 2014). Maternal stress, toxin exposure and altered maternal-infant interactions have also been linked to changes in the offspring's epigenetic state (Champagne, 2008, 2011; Skinner et al., 2010; Thompson, 2014). Even natural variations in the quality or quantity of maternal care can have a long-term impact on offspring brain and behavior (Champagne, 2011).

Postnatal biological embedding

Biological embedding can also occur after birth, with the youngest children being most susceptible. Early stress becomes deeply embedded in the child's neurobiology, with a wide range of long-term effects on cognition, emotion and behaviour (Del Giudice, 2014; Thompson, 2014). Early life social and environmental stressors, such as childhood abuse, neglect, poverty and poor nutrition, have been associated with an increased risk of common metabolic and cardiovascular diseases later in life, the emergence of mental and physical illness (such as anxiety, mood disorders, poor impulse control, psychosis and drug abuse) and increased risk for psychopathology, from depression and conduct disorders to autism and schizophrenia (Del Giudice, 2014; Miller et al., 2011a).

How does poor nutrition have life-long effects? The evidence indicates that inadequate diet in early life can permanently change the structure and function of specific organs or homoeostatic pathways, thereby 'programming' the individual's health status and longevity (Vaiserman, 2014). Unbalanced maternal diet or body composition, ranging from poor to rich environments, adversely influences the offspring's response to later challenges such as an obesogenic diet or physical inactivity, increasing the risk of disease (Godfrey et al., 2010)

How does childhood stress get under the skin, at the molecular level, to affect risk for later diseases? There is evidence that stressors such as poverty in early childhood can alter the programming of the immune system (McDade, 2012; Miller et al., 2009, 2011; Miller & Chen, 2013; Raposa et al., 2014; Ziol-Guest et al., 2012): because the immunological system is developing during this time, changes get embedded in a manner that persists across the lifespan and makes the person more susceptible to the diseases of ageing. The mechanism involved is the epigenetic modification of genes expressed in the brain that shape neuroendocrine and behavioural stress responsivity throughout life (Weaver, 2009). A harsh family climate – characterised by conflict, a lack of warmth, inadequate parenting and household chaos – alters key immune cells and produces a chronic inflammatory state in the body (Miller & Chen, 2010; Miller et al., 2011a; Raposa et al., 2014). Hormonally, early stress confers altered patterns of endocrine and autonomic discharge. Acting together with other exposures and genetic liabilities, the resulting inflammation promotes other pathogenic mechanisms that ultimately foster chronic disease (Miller et al., 2011a).

Over the life course, these proinflammatory tendencies are exacerbated by ongoing stress and negative health behaviours (Raposa et al., 2014). Behaviorally, childhood stress gives rise to excessive threat vigilance, mistrust of others, poor social relationships, impaired self-regulation and unhealthy lifestyle choices. One of the reasons that children in stressful circumstances fall behind academically is that, in addition to the other disadvantages they experience, the biological effects of stress undermine their ability to concentrate, remember things, and control and focus their own thinking. One of the reasons they experience social difficulties is that the biological effects of stress heighten emotional reactivity and undermine emotional self-regulation (Thompson, 2014).

Psychosocial processes also play a part. While our external environment determines our potential for health, it is the way we perceive that environment – as threatening or as supportive – that actually determines our capacity to achieve health (Burns, 2004). What is critical is our sense of control: if we feel in control of our lives, it is likely that our stress responses are functioning as intended and are acting to repair damage or fight off illness. If, on the other hand, we lack a sense of control, we will have chronically activated inflammatory, hormonal and immunological responses which will eventually lead to premature ageing and early onset of heart disease or cancer (Burns, 2004). This implies that individuals with a low sense of control and activated stress responses might be damaged more by smoking, poor diet and lack of exercise than those individuals that have a high sense of control.

Other researchers who see psychosocial factors as having a major impact on health include Wilkinson (2005). Wilkinson (2005) identifies three 'intensely social' risk factors – low social status, poor social affiliations and early childhood experiences – as shaping health outcomes. All three of these risk factors are associated with raised basal cortisol levels and attenuated responses to environmental stressors. The biological pathways through which psychosocial risk factors affect physical health and earlier death rates hinge on the extent to which these risk factors are a source of chronic stress. The most important psychosocial risk factors are the most important sources of stress. All three of the primary sources of chronic stress are sources of social insecurity, and derive from the way we as reflexive beings come to know and experience ourselves through the eyes of others:

> What the epidemiology is surely telling us is that these kinds of anxieties about how others see us – including our worries about being thought unattractive, stupid, ugly, inferior, and the like – are the most powerful sources of chronic stress in modern developed societies (Wilkinson, 2005, p. 92).

While accumulation and overload are one way that stressful events have a detrimental impact, there is a second way that stress can harm children. Rather than fostering hyper-reactivity to stressful events, stress can make the body hyporesponsive, that is, it under-reacts to stress: rather than reacting to stressful events with heightened cortisol activity, some children show a lower cortisol response than other children do. This hyporesponsive pattern has been found amongst children who live in homes characterised by domestic violence and mothers' emotional unavailability, and amongst preschoolers who live in foster care. This response pattern seems to reflect a stress system that shows signs of shutting down (Thompson, 2014).

Exposure to stress in the early years promotes the development of different life strategies, based upon the levels of danger and unpredictability experienced (Del Giudice, 2014). Higher levels of

stress promote faster, hypervigilant strategies that eventually express themselves in the form of earlier sexual maturation (especially in females), impulsivity, and higher levels of both externalising (aggression, attention-seeking) and internalising symptoms (anxiety, depression). Lower levels of stress lead to the adoption of slower strategies characterised by later reproductive development and behaviour, a preference towards stable pair bonds and high investment in parenting, an orientation towards future outcomes, low impulsivity and allocation of resources towards enhancing long-term survival (Del Giudice, 2014).

The process of accumulation

Development is also shaped by the cumulative effect of experiences (Boivin & Heertzman, 2012; Halfon et al., 2010; Keating & Hertzman, 1999; Masten & Cicchetti, 2010). The cumulative effects of adverse experiences during childhood and the toxic stress they cause influence every aspect of health and wellbeing in childhood and beyond (Shonkoff et al., 2009, 2012; Anda et al., 2006, 2009). These effects cascade across all areas of developmental functioning, thereby altering the course of development (Masten & Cicchetti, 2010). Over time, the cumulative wear and tear caused by exposure to chronic stress results in physiological changes to the body with long-term adverse consequences for health and wellbeing (Evans & Schamberg, 2009; Seeman et al., 2010).

This cumulative wear and tear on the body is known as *allostatic load*, and is caused by repeated mobilisations of multiple physiological systems over time in response to environmental stressors (Duncan et al., 2013; Evans & Schamberg, 2009; Thompson, 2014). Poverty is one such stressor, and the longer the children had lived in poverty, the higher their allostatic load (Evans & Schamberg, 2009). This biological wear and tear eventually leads to maladaptive physiologic responses that increase disease risk and undermine health. Childhood poverty may actually 'reset' the immune system in a manner that increases stress-related impairments in immune function, rates of infectious and chronic diseases, or blood pressure and cardiovascular disease incidence (Miller et al., 2009).

Children raised in families with low SES have high rates of chronic illness in adulthood, although not all such children are affected. One known protective factor is maternal nurturance: a study by Miller and colleagues (2011b) found that, while low childhood SES was associated with higher prevalence of metabolic syndrome at midlife, those children who had received high levels of maternal nurturance in childhood were free of these symptoms. However, it also seems that there are considerable variations in the way that different children and adults respond to different levels of adversity (Ellis et al., 2011; Masten & Obradović, 2006). There is evidence that some children and adults have a heightened susceptibility to environmental influences, such that the very characteristics that make them disproportionately vulnerable to adversity also make them disproportionately likely to flourish in positive environments (Bakermans-Kranenburg & van Ijzendoorn, 2007, 2010, 2011; Belsky et al., 2007; Ellis et al., 2011). By contrast, less susceptible individuals are less affected by rearing conditions, whether they are positive or negative. This *differential susceptibility hypothesis* (Belsky, 1997a, 1997b, 2005) and the related notion of *biological sensitivity to context* (Boyce & Ellis, 2005) now have considerable supporting evidence (Bakermans-Kranenburg & van Ijzendoorn, 2007, 2010, 2011; Belsky et al., 2007; Ellis et al., 2011; Pluess & Belsky, 2010, 2011).

Developmental escalations of risk over time

Development is shaped by developmental escalations in risk over time (Boivin & Hertzman, 2012; Repetti et al., 2002). An exposure or experience at one stage of the life course influences the probability of others later in the life course, as well as associated health and developmental outcomes (Hertzman & Boyce, 2010). This is akin to the notion of chains of risk (Kuh et al., 2003; Rutter, 1989), whereby a sequence of linked exposures raises disease risk because one bad experience or exposure tends to lead to another and then another.

Summary

There are three key ways in which early childhood experiences can have long-term effects: biological embedding; the process of accumulation; and developmental escalations of risk over time. Prenatal and early childhood experiences influence physiological and neurological development with long-term consequences. Early childhood is a period of 'plasticity' which, as such, is a period of intense and intensive growth and development.

An infant's development is influenced by environmental conditions in the womb. A foetus will adapt to those environmental conditions and, if there is a 'mismatch' between conditions in the womb and conditions after birth, the child's development may be compromised.

The cumulative effect of adverse experiences in early childhood spreads across multiple domains of development, which impacts upon the course of development and can have life-long health effects. Risk begets risk, so that one bad adverse experience tends to lead to another.

In the next section of this report, we will investigate what can be done to reduce inequities during early childhood.

5. What can be done to reduce inequities during early childhood?

There are three broad approaches for reducing inequities in health: improving the absolute position of the most disadvantaged individuals and the most disadvantaged groups; reducing the relative gap between the best- and worst-off individuals; and reducing the entire social gradient (Graham & Kelly, 2004). The same approaches could be applied to reducing inequities in health during early childhood.

Our review of the evidence thus far suggests that reducing inequities in early childhood is likely to be an extremely complex task involving the prenatal and early childhood years, maternal health and wellbeing, and family relationships, as well as involving multi-level interventions (e.g. policy, community, service systems, service provision, home environments, families) and targeting a vast range of influences (e.g. dominant cultural norms and values, the media, social networks, the attitudes and behaviours of health professionals). In addition, important cultural changes need to occur in Australia (e.g. cultural views regarding early childhood, problematic gender norms, discriminatory views and practices). Our findings thus far indicate that inequity in early childhood could be viewed, in and of itself, as a 'wicked problem.' In other words, as Grint (2010) notes, this is not a problem that can be approached as if it is 'a puzzle for which there is always an answer.'

What is significant about early childhood, in relation to inequity, is the potential that early childhood offers. As a period of 'developmental plasticity', and as a period that has profound influences upon life-long outcomes, early childhood is a period during which any effective measure to redress the avoidable, unfair differences between children is likely to have a powerful effect not only on individual children and families, but also for reducing the negative impacts of inequity at a societal level; as Wilkinson (2009) and Wilkinson and Pickett (2009) have noted, it is the degree of inequity, rather than the overall wealth of a nation, that determines the health and social outcomes of its population. Because of the unique nature of early childhood, if we can effectively reduce inequity during early childhood, we may also be able to reduce the inequities that occur subsequently in the life course.

In attempting to answer the question of how to reduce inequities during early childhood, we undertook a comprehensive review of literature from Australia and similar developed countries (i.e. New Zealand, England, Scotland, Wales, Ireland, the US and Canada) published during the period 2003-2014, and pertaining to children aged 0-8 and their families (for more information regarding the methodology used for this search, see Appendix A).

Although we identified a vast amount of literature in our searches (see Appendix A), much of it was not directly relevant to the question of equity. This finding coincides with the state of public health literature regarding health inequities overall; as Lorenc et al. (2013) note, 'the evidence base on the effect of inequalities [on] any health outcomes appears to be very limited' (p. 192). Moreover, most of the evidence we identified pertained to improving the absolute position of the most disadvantaged individuals, rather than reducing the relative gap between the best- and worst-off individuals or reducing the entire social gradient.

In order to narrow down the publications included in our analysis, we prioritised evidence that was derived from: rapid reviews, meta-analyses, systematic reviews and experimental and quasi-experimental research designs (referred to here as 'high level evidence'). In general, the high level

evidence was from the UK (i.e. England, Scotland, Wales or Ireland) and the US. We included evidence that was especially relevant but not of a 'high level' (e.g. pre- and post-test, qualitative studies and non-systematic reviews of the literature) if it appeared to be especially relevant – for example, literature that pertained specifically to inequity in the Australian context (e.g. inequities experienced by ATSI children, families and communities).

In keeping with the Fair Foundations framework (VicHealth, 2013) we have organised the information according to the three layers of influence: socioeconomic, political and cultural context; daily living conditions; and individual health-related factors.

Socioeconomic, political and cultural context

Introduction

This layer of the Fair Foundations framework pertains to governance, policy, and dominant cultural and societal norms and values. In section 3 of this report we provided an overview of how policies and cultural and societal norms and values relating to issues such as child care, breastfeeding and joblessness can cause inequities during early childhood. In the following section we describe the evidence regarding how interventions relating to governance, policy, and dominant cultural and societal norms and values can reduce inequities during early childhood.

Of all three layers of influence, we found the least amount of evidence for the socioeconomic, political and cultural context (see Appendix A). Overall, the high level evidence pertaining to the socioeconomic, political and cultural context was from studies undertaken in North America. This evidence pertained primarily to the impact of social and economic policies upon child health and, in regard to inequity, the effect of those policies on the position of the most disadvantaged children. Because of the relevance to the Australian context, we have also included evidence pertaining to some policies implemented in Australia, although the evidence for these initiatives is generally less robust.

In the following section we describe the evidence we identified regarding the following types of interventions that are relevant to this layer of the framework: public spending and health financing systems; parental leave schemes; welfare-to-work initiatives; policies and legislation pertaining to smoking during pregnancy and children's exposure to second-hand smoke; policies pertaining to breastfeeding; the fortification of food with folate; and the fluoridation of public water supplies.

Findings

One of the strongest examples of how socioeconomic and political factors can influence health inequities during the early years pertains to infant mortality and low birth weight. Research consistently demonstrates a relationship between income inequality – which is a consequence of macro-level economic and social policy – and both infant mortality rates and low birth weight in developed countries (Avendano, 2012; Collison et al., 2007; Kim & Saada, 2013; Macinko et al., 2004; Pritchard & Williams, 2011; Spencer, 2004; Tacke & Waldmann, 2013; Wilkinson & Pickett, 2009).

Analysis of international data indicates that public spending in developed countries can also influence population-wide outcomes regarding infant mortality (Fritzell et al., 2013; Tacke and Walderman, 2013). An analysis of data from 93 countries (including developing countries) using

international income inequality and infant mortality data found an association between public health care expenditure within countries and infant mortality; with a decrease in infant mortality of more than 7% for every 1% point of GDP increase in public health expenditure (Tacke and Walderman, 2013). The way in which a country's health-care system is financed can also impact upon the *magnitude* of the effects of income inequality upon infant mortality; Macinko and colleagues' (2004) analysis of quantitative data from 19 OECD (Organisation for Economic Co-operation and Development) countries found that tax-based health financing systems (as opposed to those that are funded by social security or private health insurance) reduce the impact of income inequality upon infant mortality.

One of the hypotheses put forward to explain differences between western, developed nations in regard to infant mortality and birth outcomes is differing social policies – including policies regarding maternal leave entitlements (Kim & Saada, 2013). However, there is a lack of evidence demonstrating the impact of parental leave schemes upon young children's outcomes (O'Brien, 2009; Waldfogel, 2006). A mixed method evaluation of the Australian Paid Parental Leave (PPL) scheme, which provides a regular payment to eligible primary carers of newborn and recently adopted children, found that it has been especially beneficial for mothers on low incomes, allowing them to remain at home with their babies for longer than they otherwise would have and benefiting both maternal and infant health and wellbeing (DSS, 2014). Yet, there is a lack of empirical evidence to indicate the impact of this scheme upon inequity *between* families, parents or infants (as opposed to their impact upon the absolute position of the most disadvantaged families).

One way in which parental leave schemes can potentially increase inequity is if they are only eligible for parents who have served a specific length of time in the workforce (O'Brien, 2009). A non-systematic review of father-care-sensitive-leave schemes (for working parents with very young children) found that leave schemes that included this type of criteria disadvantage parents in less secure occupations (O'Brien, 2009). The same review found that universal parental leave schemes can potentially reinforce income inequities as families that are already well paid are receiving additional money. O'Brien (2009) claims that this 'economic polarisation' can be offset by distributive tax policies (e.g. higher taxes for wealthier households).

In addition to the PPL scheme in Australia, another relatively high profile policy area in Australia pertains to single parents, poverty and joblessness. Welfare-to-work initiatives are one of the policies introduced to address concerns regarding the negative impacts of poverty and unemployment upon children (Millar, 2010). They have been introduced in the US, the UK and Australia. These initiatives promote, support and in some cases compel people who are receiving welfare to gain employment.

There is some evidence from the US and the UK to indicate positive effects for children and families (primarily mothers) as a result of welfare-to-work initiatives (Coley et al., 2007; Loeb et al., 2003; Millar, 2010). The New Hope program, based in Milwaukee, Wisconsin, is especially prominent in the literature and has been shown to have led to a range of benefits for children, including high levels of engagement in school and less likelihood of repeating grade (Huston et al., 2005; Miller et al., 2008). However, the program is intensive and long-term, involving a range of different forms of support for families, not only relating to employment (e.g. child care, health care subsidies) (Huston, 2011). Similar initiatives have been shown to increase families' use of centre-based early childhood

education and care (Duncan et al., 2009; Miller et al., 2008; Tout et al., 2004). However, the Australian evidence regarding these initiatives (primarily qualitative) indicates that welfare-to-work initiatives have a negative impact on disadvantaged families and children (Cameron, 2005; Grahame & Marston, 2011; Summerfield et al., 2010).

Research from the US indicates that welfare-to-work initiatives with mandatory employment activities can have some harmful effects upon children and families (Duncan et al., 2009). Initiatives that involve increasing the amount of money families can earn whilst receiving welfare (known as 'earnings supplements') appear to be more effective than those without earnings supplements (Duncan et al., 2009; Morris et al., 2005). Where parents are employed in relatively low-paid work, supplements such as tax credits can be critical in allowing them to stay in work (Millar, 2010).[14]

Another approach to addressing poverty amongst families with children at the policy level is to provide money directly to disadvantaged families on top of their existing income through, for example, direct cash payments and tax credits. High level evidence, primarily from studies undertaken in North America, suggests that these initiatives have a limited effect on the circumstances in which young children from disadvantaged backgrounds develop or, indeed, upon child outcomes (Lucas et al., 2008; McEwen & Stewart, 2014).[15]

One high profile policy in Australia that has targeted children and families experiencing disadvantage is the income management scheme. Rather than providing additional money to families, income management schemes quarantine part of a person's income support payment and restrict how that money can be spent (Bray et al., 2012). An evaluation of the income management scheme implemented in selected remote Aboriginal communities in the Northern Territory reported some qualitative evidence supporting improvements in child and community wellbeing as a result of income management (AIHW, 2010); however, there is a lack of robust evidence demonstrating the scheme's effectiveness (Bray et al., 2012).[16]

Considering the evidence regarding hostility towards people who rely upon welfare in Australia (Richardson, 2005) and the impact of racism upon pregnancy outcomes and health and development during the early years (Kelly et al., 2013; Kramer & Hogue, 2009) (see section 3 of this report), the risk that income management could increase the stigma experienced by Aboriginal people is especially concerning as it could potentially increase inequities for Aboriginal families and their children.

Reducing inequities relating to children's exposure to second-hand smoke would appear to be especially important considering evidence which suggests that differential rates of smoking during

[14] When parental employment is irregular or not secure (i.e. moving in and out of unemployment), employment can have a negative impact on children, thereby outweighing the benefits of employment (e.g. increased income) (Coley & Lombardi, 2012; Cooklin et al., 2011; Millar, 2010; Strazdins et al., 2010). Irregular and insecure employment is also associated with an increased risk of maternal postpartum psychological distress (Cooklin et al., 2011; Strazdins et al., 2010).

[15] McEwen and Stewart (2014) also note, however, that 'the relationship between income and child outcomes varies between countries, both in the size and strength of the association' (p. 100).

[16] An evaluation of the new form of the income management scheme is currently being undertaken by the Social Policy Research Centre and the Australian Institute of Family Studies (AIFS, 2013). The new income management scheme will be applied across the Northern Territory.

pregnancy according to SES and sociodemographic characteristics are increasing in Australia (Kildea et al., 2013; Moshin et al., 2011).

At the policy level, numerous policies and legislation have been introduced in Australia, and in similar developed countries, to address smoking during pregnancy and children's exposure to second-hand smoke. Comprehensive tobacco control programs which include, at a minimum, active tobacco price policies, effective education, smoke-free place policies and population-level cessation support, may be effective at increasing the prevalence of smoke-free homes (Thomson et al., 2006).[17] Cigarette excise taxes have been found to be effective at reducing household tobacco use amongst parents from low-income households in the US (Hawkins et al., 2012). Policies which aim to change public knowledge and actions on second-hand smoke may directly affect the prevalence of smoke-free homes (Thomson et al., 2006).

The media plays an important role in influencing cultural and societal norms and values pertaining to children (see, for example, Anderberg et al., 2011), and mass media campaigns that discourage smoking in the home have been shown to be effective in Australia (Thomson et al., 2006). However, some studies suggest mass media tobacco cessation campaigns can actually increase health inequities (Lorenc et al., 2013). There is some evidence to suggest that media campaigns can also raise awareness and promote the importance of breastfeeding (Hallam, 2008).

Legislation also clearly plays an important role in influencing children's health, and influencing parents' and families' behaviour (e.g. child car restraint legislation, Reeve et al. (2007)). However, in regard to smoke-free legislation, the evidence is generally not supportive of this approach as a means of reducing the prevalence of smoke-free homes or parental smoking, or as a means of reducing inequity. Systematic reviews of the literature indicate a lack of evidence to demonstrate that legislation directly affects the prevalence of smoke-free homes (Callinan et al., 2010; Thomson et al., 2006). Similarly, one US-based study found that smoke-free legislation does not impact upon parental smoking (Hawkins et al., 2012).

There is some evidence from the UK to suggest that this type of legislation is ineffective at reducing inequities relating to second-hand smoke exposure between children from the highest and lowest SES groups and may, in the long term, in fact *increase* those inequities (Akhtar et al., 2010; Moore et al., 2011, 2012b).[18] Changing outcomes for children via legislation is not always straightforward. For example, in order for legislation to be effective, people need to know that it exists; some studies show that women believe breastfeeding in public is illegal, even in countries where there is legislation that protects women's rights to breastfeed in public (Clifford & McIntyre, 2008).

In regard to policy-level interventions related to child health, it is important to also consider breastfeeding support in the workplace. There is some evidence to suggest that when employers

[17] Thomson et al. (2006) did not systematically review all interventions. Rather, they sought to identify the major options for population-level government policies to increase the prevalence of smoke-free homes and evaluate the effectiveness of those options.

[18] There are a range of hypotheses to explain this phenomenon, primarily relating to the complexity of the everyday lives of parents from disadvantaged backgrounds (Wilson et al., 2012). For example, parents in high SES groups may find it easier to restrict their smoking in the home and there may be greater social acceptance in high SES groups to not smoke in the home (thereby influencing the smoking behaviour of friends and family who visit the home) (Akhtar et al., 2010).

have had experience working with women who have breastfed or are aware of other businesses that employed breastfeeding women this increases the likelihood of support for breastfeeding within the workplace (Clifford & McIntyre, 2008).

There is an association between SES and breastfeeding initiation and duration in Australia and other developed countries (Amir & Donath, 2008; Hure et al., 2013; Kelly & Watt, 2005; Oakley et al., 2014), yet, overall, there appears to be a lack of evidence regarding effective policy initiatives to support breastfeeding amongst disadvantaged women (Renfrew et al., 2007). Furthermore, Lutter & Lutter (2012) note that despite the recognised health benefits of breastfeeding for infants' short- and long-term health, worldwide funding for research regarding breastfeeding is limited when compared to other child health interventions.

Another important policy area relevant to health inequities amongst young children is the fortification of commonly consumed food, such as bread, with folate. Folic acid supplements during pregnancy can prevent neural tube defects in infants. A Western Australian study found that health promotion strategies which encouraged women to take folic acid supplements were less well known amongst less-advantaged subgroups within the population, yet there was no such disparity with folate-fortified food (Bower et al., 2005). Similar support for folate-fortified food as a means of reducing inequity emerges in research undertaken in New Zealand, Canada and the UK (Mallard et al., 2012; Peake et al., 2013; Riccuito & Tarasuk, 2007. There is some qualitative evidence from Australia to suggest that food labelling may be less effective amongst low-income groups as a means of reducing childhood obesity (Pettigrew & Pescud, 2013).

In Canada, an analysis of quantitative data from more than 35,000 households, collected over four time periods over a number of decades, found that the increase in income inequality over that period corresponded with income-related nutritional disparities (i.e. the lower income, the poorer the nutrition), *with the exception* of folate. The authors hypothesise that this may be the result of the mandatory fortification of some foods with folic acid in Canada during the time the study was undertaken (Riccuito & Tarasuk, 2007).

Another policy that is similar to the policy of fortifying commonly consumed food with folate is the fluoridation of public water supplies. Evidence from large-scale studies of oral health data in Australia indicate that access to fluoridated public water is related to a significant reduction in caries amongst children (Armfield, 2010; Armfield, 2005), and there is evidence to suggest that the fluoridation of water benefits Australians from all socioeconomic backgrounds – an important finding in regard to equity, considering the substantial dental health disparities and inequalities in access to dental care in Australia (Armfield et al., 2005; Cobiac & Vos, 2012).

Daily living conditions context

Introduction

This layer of the Fair Foundations framework pertains to the circumstances in which people are born, grow, live, work and age. In section 3 of this report we provided an overview of daily living conditions that cause inequity during childhood – including family environments, social participation and access to health-care services. In the following section we describe the evidence regarding how

interventions relating to the daily living conditions of young children and families can reduce inequities during early childhood.

Of all three layers of influence, the daily living conditions context was the layer for which we found the most evidence. The quality of the evidence for this layer of the framework was relatively good; a number of systematic reviews and meta-analyses have been undertaken. A number of experimental and quasi-experimental trials of interventions have also been undertaken, including some trials undertaken in Australia. However, as with the findings for the socioeconomic, political and cultural context described above, few studies explicitly addressed the issue of inequity.

In the following section we describe the evidence we identified regarding the following types of interventions that are relevant to this layer of the framework: early childhood education and care; area-based interventions; community-level obesity and overweight prevention programs (that have brought about improved outcomes for young children); community-level oral health programs; food subsidy and food voucher programs; vitamin supplement programs; housing interventions; intake promotion and support programs; and early years health services with universal coverage.

There is some strong evidence to indicate the impact of some of these interventions amongst the most disadvantaged children and communities in Australia; however, as with the socioeconomic, political and cultural context, there is little evidence regarding the impact of those interventions upon inequity.

Findings

One way of reducing inequities during early childhood at the daily living conditions level is through the provision of high quality early childhood education and care.[19] As noted in section 3 of this report, learning and development are cumulative – the skills acquired early form the basis for later skill development, and the skills children possess when they reach school are critically important (Alexander et al., 2001; Cunha et al., 2006; Field, 2010; Meisels, 1998; Rigney, 2010; Stipek, 2001, 2005).

Children who suffer multiple adverse experiences during early childhood are disadvantaged as a result, because those adverse experiences impact negatively upon their development (Anda et al., 2006, 2009; Brown et al., 2009). High quality ECEC can offset some of the negative impacts of multiple adverse experiences during early childhood: ECEC programs that have targeted disadvantaged families and disadvantaged neighbourhoods have been shown to have a range of positive effects on children, including improved school readiness, in addition to a range of other benefits, including improved language skills, literacy and behaviour (Campbell et al., 2012; Homel et al., 2006; Liddell et al., 2011; Muennig et al., 2011; Schweinhart et al., 2011).

Universal ECEC programs, however, also play an important role in reducing inequity across the social gradient: a number of meta-analyses and systematic reviews have confirmed that participation in an ECEC program benefits *all* children in a range of ways, including cognitively, socially, behaviourally

[19] ECEC programs are attended by children before they reach school age and in Australia they include long day care, family day care, occasional care and kindergarten/preschool (CCCH, 2013). The quality of ECEC is determined according to structural factors (e.g. the number of children in a room) and process factors (e.g. the nature of adult-child interactions) (CCCH, 2013).

and in relation to school readiness outcomes (Camilli et al., 2010; Durlak, 2003). However, numerous systematic reviews and meta-analyses have also demonstrated that high quality ECEC programs are especially beneficial for children from disadvantaged backgrounds (Anderson et al., 2003; Becker, 2011; Coghlan et al., 2009; Geoffroy et al., 2010; Sylva et al., 2003, 2008). The quality of ECEC programs is especially important; high quality ECEC programs produce better outcomes for children than lower quality programs in both the short and long term (Sylva et al., 2003, 2004, 2008, 2012).

Considering the benefits of ECEC, especially high quality ECEC for children experiencing disadvantage, it is concerning to note that in Australia the quality of ECEC programs in disadvantaged neighbourhoods is generally lower than those operating in more advantaged neighbourhoods (CCCH, 2013). For a range of reasons outlined in section 3 of this report, children in disadvantaged neighbourhoods are less likely to experience positive learning environments in the home and the community than children living in communities that are not disadvantaged. Given the differential quality of ECEC, it is easy to see how inequity during early childhood could be exacerbated by the poorer quality of ECEC in disadvantaged communities.

Playgroups are another form of early childhood education and care which are often overlooked in discussion regarding ECEC. Parents attend playgroups with their young children, providing them with opportunities to meet and share their experiences with other parents (Jackson, 2013). Their children are also provided with opportunities to socialise, as well as play and learn (Jackson, 2013). Community playgroups are led by parents, whereas supported playgroups are facilitated by an early childhood teacher, community worker or health professional and are typically attended by vulnerable families (Jackson, 2013). Although there is limited evidence to demonstrate the effectiveness of playgroups generally, a qualitative study undertaken in New South Wales found that inclusive and engaging supported playgroup environments lessened parents' feeling of isolation and inequality and led to increased confidence in parenting (Jackson, 2013).

Another factor that causes inequity during early childhood is growing up in a disadvantaged community. One way of responding to this phenomenon at the level of daily living conditions is through area-based interventions. These interventions target a specific geographical location and aim to bring about change to a whole community. They are typically implemented in disadvantaged communities, have a strong focus upon community development and collaborate with existing services. Moreover, they are often driven by a concern regarding intergenerational disadvantage and the negative impacts of community-level disadvantage upon families and children (Melhuish et al., 2008; Muir et al., 2010). Although large-scale area-based interventions that target young children and their families in the UK and Australia have had small effect sizes, the effects are generally viewed as significant enough to be of policy significance (Melhuish, 2008); however, it is generally acknowledged that the effects of these interventions typically 'fade out' once children start school (Edwards et al., 2014; NESS, 2012).

A robust evaluation of a high profile area-based intervention in the UK, known as 'Sure Start', involving more than 5000 children and their families, found that at three years of age the initiative had had a positive impact on the home-learning environments of children in the target communities (Melhuish et al., 2008).[20] Sure Start also had a positive impact on the social development, behaviour

[20] An earlier evaluation of Sure Start indicated that the initiative had adverse effects on the most disadvantaged children (Belsky et al., 2006), a concerning finding considering the intervention was designed to

and independence of children, and on parenting (Melhuish et al., 2008). By the time children were five and seven years of age, there were some further positive effects on their daily living conditions, including less chaotic home environments (age five) (NESS, 2010) and less harsh discipline (age seven) (NESS, 2012).

A quasi-experimental cohort study of Communities for Children (CfC) – an Australian area-based intervention similar to Sure Start – found that the initiative led to a number of positive outcomes, including changes in two important aspects of children's daily living conditions: less harsh parenting and fewer children living in a jobless household (Edwards et al., 2009). Parents in CfC sites also demonstrated higher parenting self-efficacy (Edwards et al., 2009). A subsequent evaluation of CfC that investigated the medium- and long-term effects of the program found some positive long-term effects, including: greater engagement with children in music and singing amongst more disadvantaged families (between the period of early childhood up until the children were 9-10 years of age); and greater levels of volunteering by parents in CfC communities (Edwards et al., 2014).

Although not aligning with all the characteristics of an area-based initiative, the Northern Territory Emergency Response (NTER) in Australia also targeted specific geographic locations (i.e. Aboriginal communities and town camps in the Northern Territory) and as such is worth mentioning here. Initiated in response to increases in child protection substantiations amongst Aboriginal children in the Northern Territory, the NTER was designed to bring about improved outcomes for ATSI children and families through the improvement of basic services, infrastructure and community safety (FaHCSIA, 2011). [21]

A mixed methods analysis identified some 'promising trends' regarding child and family health as a result of the NTER, including a significant decline in anaemia amongst ATSI children aged 0-4; a decline in the proportion of children who are underweight, wasted and stunted; and a notable decline in middle ear infections (FaHCSIA, 2011).[22] However, it is not clear whether the initiative has reduced the occurrence of child abuse and neglect (FaHCSIA, 2011).

As noted previously in regard to income management, the way in which initiatives are planned and implemented in ATSI communities is a critical consideration. The involvement of Indigenous people in health promotion initiatives is identified in countries with a similar history to Australia (e.g. New Zealand, Canada) as a fundamental component of community health and health equity programs and initiatives (Potvin et al., 2003; Signal et al., 2007). Similarly, factors such as community involvement and engagement, doing projects with – and not for – ATSI people and collaboration between governments and communities have been recognised as key elements of programs that have effectively addressed disadvantage amongst ATSI people in Australia (AIHW, 2014).

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reduce inequities for disadvantaged children. However, Melhuish et al. (2008) note that these findings were not replicated in the subsequent evaluation, possibly because of a stronger focus within the initiative upon reaching the most vulnerable families.

[21] The NTER was 'reframed' by a subsequent government and linked to the aforementioned Closing the Gap strategy (Altman & Russell, 2012). At the time this report was published, the Department of Social Services (DSS) was known as the Department of Families, Housing, Community Services and Indigenous Affairs (FaHCSIA).

[22] The methodology for this review does not appear to have been systematic. The documents relied upon were government and policy documents, academic articles and evaluation reports (FaHCSIA, 2011).

Problems with the way the NTER initiative was implemented have led to some communities and community members feeling as if they have been unfairly labelled, and breakdowns in trust between communities and government have occurred (FaHCSIA, 2011). The Cape York Welfare Reform initiative is an example of an Australian area-based intervention that has been delivered in ATSI communities, has had positive effects on families *and* incorporates community involvement; a central feature of the initiative is an independent authority comprising members of each of the ATSI communities included in the reform initiative (FaHCSIA, 2012).

Another group of relevant initiatives with a community-level focus are community-level obesity and overweight prevention programs that incorporate activities involving young children and their families. Reducing socioeconomic inequities relating to obesity amongst children requires a range of public health interventions at the individual, community and societal levels (Bambra et al., 2012). We identified evidence pertaining to the former two levels; however, the most evidence we identified pertained to the community level (i.e. daily living conditions). This reflects the general shift within public health to reducing health inequities towards community-based rather than individualist approaches (Bandesha & Litva, 2005), as well as an increasing interest in community-based and community capacity building childhood obesity prevention programs in Australia and overseas (see de Groot et al., 2010; Kesten et al., 2013 and Smith et al., 2004).

A systematic review of community-based childhood obesity programs in high-income countries identified evidence of 'moderate strength' to suggest that interventions which combine diet and physical activity initiatives in the community (with a school component) are more effective than those that are only conducted in a community setting or conducted in a community and other setting (e.g. the home setting) (Bleich et al., 2013). There are multiple benefits associated with using schools as a setting for promoting physical activity (Booth & Okely, 2005).

In Australia, community-based initiatives, such as the 'Go for your life Colac Be Active, Eat Well' program in Victoria, address inequalities relating to obesity at a community level. The initiative was a multi-setting, multi-strategy approach addressing behavioural and environmental influences targeting children aged 4-12 years of age (Swinburn et al., 2012; VicHealth, 2009). A mixed-methods evaluation reported that the program led to lower weight gain and waist growth amongst children in the target community (Swinburn et al., 2012; VicHealth, 2009). Similar community-level interventions in the UK that target disadvantaged communities demonstrate promise (see Institute of Health Equity, 2014; Williams et al., 2011b).

It is worth noting here, however, that although socioeconomic inequalities relating to obesity risk factors are increasing in Australia, and other developed countries (Bambra et al., 2012; Stamatakis et al., 2010), we identified only one study that investigated the impact of childhood obesity prevention programs upon inequity (Waters et al., 2011). This finding reflects a general lack of evidence regarding what interventions effectively reduce the socioeconomic gradient in obesity prevalence (Bambra et al., 2012).

For interventions that targeted young children (0-5 years), Waters et al. (2011) found 'a lack of analysis by a measure of equity or SES [which limited the] ability to assess the effectiveness of

interventions in reducing health inequities' (p. 21).[23] For those studies that focused on children aged 6-12 years, Waters et al. (2011) found, 'either no association between the outcomes of the intervention and [measures relating to sociodemographic characteristics], or positive impacts for groups of lower SES' (p. 27). In conclusion, Waters et al. (2011) state that obesity prevention interventions amongst children (i.e. 0-18 years), 'where examined … have not increased health inequalities' (p. 34).

Community-level initiatives have also been employed as a means of improving the oral health of Aboriginal children living in remote communities. A health promotion program focusing on the reduction of dental caries amongst children living in remote Aboriginal communities through fluoride varnish applications, training of primary care workers and individual, family and community-level health promotion did not produce any significant effects on oral health behaviours or clinical measures of oral health hygiene (Roberts-Thomson et al., 2010). However, other oral health interventions in remote Aboriginal communities have been successful. A randomised control trial (RCT) of a health promotion program similar to that described by Roberts-Thomson, and also in remote Aboriginal communities in the Northern Territory, led to a significant improvement in dental health amongst the intervention group when compared to the control group after two years (Slade et al., 2011).

Another important factor to take into account in regard to inequity amongst young children is nutrition. In developed countries, including Australia, there is an association between poor nutrition and socioeconomic status (Craig et al., 2010; Currie, 2005; O'Dea & Wilson, 2006; Williams et al., 2011a). There is also an association between nutritional intake during pregnancy and sociodemographic characteristics (Wen et al., 2010). Food insecurity, defined as a restricted or uncertain ability to obtain nutritionally adequate foods in a socially acceptable manner, can have negative impacts upon health (Castillo et al., 2012), and is also linked to socioeconomic disadvantage (Ramsey et al., 2011; Foley et al., 2010).

At the level of daily living conditions, one way of addressing inequities in nutrition amongst pregnant women and families with young children is food subsidy and vitamin supplementation programs. A Cochrane review which investigated the effectiveness of food subsidy programs for disadvantaged families found that targeted fruit and vegetable subsidy programs combined with nutrition education led to increases in nutrients of pregnant women (Black et al., 2012).[24] However, Black and colleagues (2012) found limited evidence of a *sustainable* impact on the dietary behaviour of adults and children as a result of food subsidy programs.

An alternative strategy for improving nutrition amongst disadvantaged families is to provide them with additional money to purchase food; however, an RCT of this approach in New Zealand demonstrated no effects on healthy eating (Smith et al., 2013). Food voucher programs – whereby

[23] Waters and colleagues' (2011) findings regarding evidence pertaining to 0-5-year-olds reflects the fact that there is a lack of evidence regarding what works to prevent obesity amongst young children (i.e. 0-5 years) (Flynn et al., 2006; Guyer et al., 2008).

[24] The reviewers are careful to contextualise these findings from US-based programs, noting that: 'Food subsidy programs are central to the social security system for low income people in the US. For countries with their own specific social security systems, the outcomes of food subsidy programs may be quite different … Modelling studies suggest that healthy food subsidies in combination with taxation of less healthy foods could have a larger impact on the nutrition of those on low incomes' (Black et al., 2012, p. 22).

vouchers can be exchanged for some types of food (e.g. fresh and frozen vegetables, milk) – have had positive effects on the diets of low-income pregnant women and families with young children in the UK (Ford et al., 2009; McFadden et al., 2014).

A pre- and post-test study investigating the impact of a fruit and vegetable subsidy program on the nutritional status of a cohort of disadvantaged Aboriginal children living in rural Australia found that the program led to significantly increased levels of a range of biomarkers of fruit and vegetable intake at 12-month follow-up (Black et al., 2013a). A subsequent investigation on short-term health outcomes for participating children found that there was a significant decrease in oral antibiotics prescribed during the 12 months children participated (compared to the previous 12 months); however, the proportion of children classified as overweight or obese did not change, nor did the proportion with iron deficiency and anaemia (Black et al., 2013b). A quasi-experimental trial of a school-based program providing free fruit to children (7-11 years) in schools attended by the most disadvantaged children in Auckland significantly increased fruit intake in the intervention group but 6 weeks post-intervention those children's fruit intake had fallen below baseline levels (Ashfield-Watt et al., 2009).

In regard to vitamin supplementation programs, a rapid review investigating the use of folic acid supplements amongst women in the UK concluded that unless interventions specifically target vulnerable groups they could potentially *exacerbate* socioeconomic inequalities as a universal approach alone is likely to maintain low levels of awareness and folic acid use amongst vulnerable women (Stockley & Lund, 2008). In some cases, free vitamin supplementation programs have poor rates of uptake (Jessiman et al., 2013).

Another cause of health inequities between children is poor housing (see section 3 of this report). This is especially relevant to the gap between ATSI and non-ATSI children, particularly in remote ATSI communities where the type of infectious diseases that infants commonly present with are strongly linked to poor housing conditions and overcrowding (Jervis-Bardy et al., 2014; Kearns et al., 2013).

Although there is strong evidence regarding the effect of education and hand-washing with soap in preventing diarrhoeal disease amongst children in remote ATSI communities (McDonald et al., 2008), improving the household infrastructure required to undertake tasks such as washing clothes and preparing food does not appear to lead to a significant reduction in common childhood illnesses (Bailie et al., 2012). Overall, it appears that interventions which focus primarily on housing infrastructure do not solve housing inequities in remote ATSI communities – health behaviours also need to be addressed (McDonald et al., 2008; Bailie et al., 2011, 2012).

Housing interventions that aim to improve the absolute position of children in remote ATSI communities require a multi-level, multi-faceted, 'ecological' approach (Bailie et al., 2011, 2012; McDonald et al., 2008; Ware, 2013). Hygiene and public health interventions that incorporate sanitation, nutrition, education and primary health care have the greatest likelihood of improving child health outcomes in those remote communities (McDonald et al., 2008). Moreover, unless the underlying issues relating to high levels of disadvantage in ATSI communities are addressed, housing-related health promotion programs are unlikely to effective in the long term (McDonald et al., 2010; Bailie et al., 2012).

Although poor housing conditions are a particular concern in remote ATSI communities, ATSI people in urban and regional areas also experience housing disadvantage (Phillips & Milligan, 2010). Focusing specifically on urban and regional housing, Milligan et al. (2010, 2011) have investigated how to improve housing services to ATSI Australians in ways that are consistent with cultural values and aspirations. They state that there is a need for greater research and evaluation effort in regard to understanding the best approaches for delivering effective urban ATSI housing services (Milligan et al., 2010).

One of the factors that appears to make a significant contribution to health inequities amongst young children, and also described in section 3 of this report, pertains to access to services: those who are most in need of services are often the least likely to access them. Based upon the evidence we identified, the vast majority of studies that investigate service access by disadvantaged families with young children focus on exploring the barriers to access (e.g. Comino & Harris, 2003; Digiacomo et al., 2013; Downe et al., 2009; Leurer et al., 2011; O'Mahony et al., 2012; Ou et al., 2011; Riggs et al., 2014; Sword, 2003). We found limited evidence regarding the effectiveness of actual strategies to improve access; the evidence from Australia is largely qualitative or descriptive.

One approach to improving service access is intake promotion and support (e.g. contacting parents prior to appointment to discuss potential barriers to attendance). The UK experimental and quasi-experimental studies testing the effectiveness of pre-intake prompting and support for improving families' registration with, and use of, services have reported mixed findings (Lever & Moore, 2005; Michelson & Day, 2014; Yuan et al., 2007). Lever and Moore (2005) reported upon the findings of an RCT to test the hypothesis that poor rates of attendance at Sure Start child health surveillance sessions might improve if, prior to appointments, research assistants undertook home visits to explain the purpose of health surveillance and discuss problems relating to attendance. The trial did not lead to an increase in child health surveillance attendance.

Michelson and Day (2014) undertook a quasi-experimental trial of an intervention involving a phone conversation with parents living in disadvantaged communities to systematically identify and address possible barriers to attendance at a child and family mental health service. Families receiving the intervention were less likely to miss their first appointment when compared to contemporaneous or historical control groups.

In Australia, qualitative evidence indicates that a number of factors are required to improve service access for vulnerable families, including that program design and individual service provision need to be based upon principles of responsive, respectful service, trusting parent-professional relationships, and multidisciplinary and multiagency collaboration (Harvey et al., 2012). Providing services through non-stigmatising settings is a promising means of improving service access and linking families to the support they need (Butler et al., 2012).

An extensive review of literature regarding how to improve ATSI families' access to early childhood services in urban and regional areas identified a range of individual-level, provider-level and program-level facilitators, including provision of transport, greater flexibility in service provision and involvement of local ATSI communities in the planning and development of services (Ware, 2013). A qualitative study investigating the factors associated with Aboriginal children's accessing of disability support and disability services reported that building the expertise of Aboriginal health workers to

provide disability support may improve the provision of disability services to Aboriginal children within an urban setting (Digiacomo et al., 2013).

The importance of accessible, comprehensive universal services for reducing inequity during the early years is underlined by a recent study which demonstrates significant differences in levels of vulnerability amongst Australian children by jurisdiction (Brinkman et al., 2012). For example, the most disadvantaged neighbourhoods of New South Wales and Tasmania have similar levels of developmentally vulnerable children to those of mid-range neighbourhoods in Western Australia and the ACT and the most advantaged neighbourhoods in Queensland (Brinkman et al., 2012).

Although it is not possible to demonstrate cause and effect with the available data, differences in the availability of universal health services during the early years in jurisdictions in Australia could account for this confounding finding: 'New South Wales, Tasmania and Victoria appear to have the most comprehensive universal early years service coverage – and in two of these states (New South Wales and Tasmania) the level of inequality in child developmental vulnerability is smallest' (Brinkman et al., 2012; p. 9).

Individual health-related behaviours and attitudes

Introduction

This layer of the Fair Foundations framework pertains to individual health-related factors such as knowledge, attitudes and behaviours. Individuals' health-related knowledge, attitudes and behaviours result from, and are responses to, their socioeconomic, political and cultural context, social position and daily living conditions. In section 3 of this report we provided an overview of how the individual health-related knowledge, behaviours and attitudes of parents can impact upon inequity during the early years. In the following section we describe the evidence regarding how interventions relating to the individual health-related behaviours and attitudes of parents can reduce inequities during early childhood.

The amount of evidence we found for this layer of the framework was greater than that for the socioeconomic, political and cultural norms and values context, but less than that for the daily living conditions context (see Appendix A). The quality of the evidence for this layer of the framework was relatively good – with a number of systematic reviews having been undertaken. A number of experimental and quasi-experimental trials of interventions have also been undertaken, including some trials undertaken in Australia. As with the daily living conditions context, few studies explicitly addressed the issue on inequity.

In the following section we describe the evidence we identified regarding the following types of interventions that are relevant to this layer of the framework: home visiting; interventions that target the smoking behaviours of pregnant women and parents; health education (targeting breastfeeding and oral health behaviours); peer support for breastfeeding; and parenting programs.

As with the two previous layers of the framework, there is some evidence to indicate the impact of some of these interventions amongst the most disadvantaged children and communities in Australia; however, there is little evidence regarding the impact of those interventions upon inequity.

Findings

One service delivery strategy that has been shown to have had positive effects on the behaviour and attitudes of parents is home visiting. Home visiting is a service delivery strategy that aims to provide a range of supports for families (Boller et al., 2010). It is not a single uniform intervention, but a strategy for delivering a multiplicity of services (Boller et al., 2010; Howard & Brooks-Gunn, 2009; Kahn and Moore, 2010; Landy and Menna, 2006; Sweet and Appelbaum, 2004).

Intensive home visiting programs typically target significantly disadvantaged children, parents and families and, as such, have the potential to improve the absolute position of these groups through improvements in a range of areas, including: parent confidence/competence (Rodriguez et al., 2010; Love et al., 2005; Olds et al., 2004); child abuse and neglect (Fergusson et al., 2005; Duggan et al., 2004; DuMont et al., 2006); and parent-child relationships (Kemp et al., 2011). In addition to impacting upon the behaviour and attitudes of parents, some home visiting programs have also been shown to improve the daily living conditions of young children, including the home environment (Kemp et al., 2011; Love et al., 2005).

Until recently there was little evidence indicating the effectiveness of home visiting programs for young children and their families in Australia (Kemp et al., 2008). However, in recent years robust evaluations of Australian home visiting programs have demonstrated their beneficial effects on a range of outcomes amongst significantly disadvantaged families, including the individual health behaviours and attitudes of parents, such as improvements relating to breastfeeding (Kemp et al., 2011); improvements in parenting confidence and parenting style (e.g. significantly lower levels of anger and hostility) (Liddell et al., 2011); and improvements relating to obesity risk factors in early childhood (Wen et al., 2011; Wen et al., 2012).

Clearly, because home visiting programs typically target significantly disadvantaged families, they are unlikely to reduce the entire social gradient pertaining to young children's health; however, they may improve the absolute position of the most disadvantaged children. One of the benefits of home visiting programs is that they reduce some of the challenges associated with service access (e.g. lack of transport).

Another parenting behaviour that can have a significant impact upon children's health is smoking. In this section of the report, we have already described some of the policy-level interventions that have been used to reduce smoking during pregnancy and reduce children's exposure to second-hand smoke. At the level of individual parents' smoking behaviours, Priest et al. (2008) undertook a systematic review and found 'insufficient evidence to recommend one strategy over another to reduce the prevalence or level of children's environmental tobacco smoke exposure' (p. 20). Some interventions have been successful at improving parents' knowledge of the effect of environmental tobacco smoke, but changes in smoking behaviours and a lessening of children's exposure to tobacco smoke did not necessarily follow (Priest et al., 2008). There is some indication that interventions that focus on attitudes and behaviours may be more successful than interventions that focus on knowledge (Priest et al., 2008).

There appears to be limited evidence regarding the impact of parent-focused smoking cessation interventions on inequities amongst young children. However, there is some evidence to indicate what might be effective in improving the absolute position of the most disadvantaged children.

Targeted telephone-based motivational smoking cessation interventions and holistic cessation support delivered to women in their own homes and through community outreach have demonstrated some promising results amongst low-income pregnant women in the US and the UK (Bryce et al., 2009; Parker et al., 2007).

Considering higher rates of smoking amongst pregnant ATSI women and a higher likelihood of exposure to second-hand smoke in the home amongst ATSI children (AIHW, 2012), it is important that effective smoking cessation interventions are in place for ATSI communities. However, in a systematic review Passey et al. (2013) identified a lack of evidence pertaining to what works in regard to smoking cessation interventions targeting pregnant ATSI women. However, based upon the findings of two systematic reviews, some promising strategies include: targeting male partners who smoke; tailoring interventions to local culture and providing culturally tailored support to quit smoking; delivering smoking cessation support through all antenatal providers; and involving other members of the community (Gould et al., 2013; Passey et al., 2013).

Another approach that is often used to improve young children's health is health education for parents. Health education has been used to improve breastfeeding amongst women experiencing disadvantage (Dyson et al., 2005) – which, if effective, is likely to play an important role in reducing inequities in early childhood; as Renfrew et al. (2007) note, 'low initiation and continuation rates [of breastfeeding] amongst low-income and other disadvantaged families add to social inequalities in health outcomes and perpetuate the intergenerational cycle of poor health' (p. 726).

A meta-analysis of interventions to promote the initiation of breastfeeding found that all forms of health education (e.g. breastfeeding education sessions delivered by a lactation consultant during pregnancy) seem to have increased breastfeeding rates amongst low-income pregnant women (Dyson et al., 2005). However, further research is required in a range of areas, including a comparison of interventions that involve health education only and those that combine health education with postnatal support. Worldwide, the utilisation of existing effective breastfeeding interventions is limited (Lutter & Lutter, 2012).

Support for breastfeeding can come from a range of sources, including family and friends, health professionals, employers and the wider community (Clifford & McIntyre, 2008). One method of support for breastfeeding is peer-support interventions. These interventions have been shown to increase the likelihood that women will breastfeed and increase the duration of breastfeeding (Clifford & McIntyre, 2008). Peer support interventions have also been shown to demonstrate promise amongst women in rural and disadvantaged communities in the UK (Alexander et al., 2003; Dykes, 2005; Hoddinott et al., 2006, 2007). Within urban ATSI communities, a number of strengths have been identified that offer opportunities for engagement in future breastfeeding promotion and support initiatives, including: women's persistence in adversity and resilience and extended family and social networks (Foley et al., 2013).

In addition to being utilised to improve initiation and duration of breastfeeding, health education has also been utilised to improve access to health-related information amongst parents and as a means of improving children's oral health. Targeted approaches to providing health-related information can be effective; for example, a pre- and post-study of a low-cost text messaging system to distribute pregnancy and health-related information to low-income pregnant women reported significant reductions in maternal stress and depression and improved mental health (Song et al.,

2013). A similar intervention in Western Australia that utilised mobile phones to provide pregnant women with health-related information but available universally was evaluated using a qualitative approach and found to be accessed equitably across the socioeconomic spectrum (Hearn et al., 2013). A telephone-delivered education program for parents of children (aged 6 months-6 years) who were public dental patients in a low socioeconomic area in Queensland prevented an estimated 43 carious teeth per 100 children (Pukallus et al., 2013).

Qualitative studies undertaken in New South Wales indicate that that dental health education materials commonly provided to parents of preschool-aged children can be difficult for parents to understand because the information is confusing, is not available in languages other than English, includes medical jargon with which the parents are not familiar and/or does not accurately reflect their cultural background (Arora et al., 2012b, 2014).

In section 3 of this report we noted the profound effects that parents – and parenting – can have upon children, their development and their short- and long-term outcomes. Parenting programs offer a means of supporting parents to develop positive relationships with children; prevent or treat problems experienced by the child, such as behavioural and emotional issues; and reduce the risk of child maltreatment (Barlow et al., 2010; NSW Department of Community Services, 2005). There are literally thousands of parenting programs in existence and they employ a range of techniques, including discussion, role play, video feedback and homework, and there are literally thousands of parenting programs in existence (Barlow et al., 2012; Goodson, 2005).

There is a substantial body of high quality evidence pertaining to the effectiveness of parenting programs. They have been shown to lead to significant improvements in parent mental health, confidence and stress levels, parenting skills, child behaviour problems and children's emotional adjustment (Barlow et al., 2012; D'Souza & Garcia, 2004; Furlong & McGilloway, 2012; Piquero et al., 2008; Thomas & Zimmer-Gembeck, 2007).

Although some parenting programs have been shown to improve parental psychosocial functioning, those are typically short-term effects and, as such, there may be a need for 'longer or more intensive programs or for post-intervention support' (Barlow et al., 2012, p. 18). Intensive parenting support is likely to be especially important for families experiencing multiple and complex problems. An intensive early intervention program for vulnerable families living in New South Wales, involving parenting support, home visiting and early childhood programming within a model of centre-based care, was shown, through a pre- and post-test design, to lead to significant improvements in parent stress, parent confidence and parent capacity, as well as child wellbeing and family functioning (Gwynne et al., 2009).

Parenting programs have also had some success in Australian amongst migrant and refugee families. A pre- and post-test study of a parenting program for African refugees and migrants living in Melbourne found that participation in the program was related to positive changes in parental expectations of children, views regarding corporal punishment, and restriction of children's access to food (Renzaho & Vignjevic, 2011).

Evidence regarding the effectiveness of parenting programs for ATSI families is weak (Mildon & Polimeni, 2012); however, one parenting program that has demonstrated some effectiveness is a culturally tailored group-based version of Triple P-Positive Parenting Program. The culturally tailored

group-based version of Triple P, described by Turner et al. (2007), was developed in recognition of the fact that mainstream parenting programs often have difficulty recruiting and maintaining the participation of ATSI parents.[25] An RCT of the program found that parents reported significantly less reliance on some dysfunctional parenting practices when compared to waitlist families (Turner et al., 2007).

One especially promising aspect of Triple P is its capacity to bring about population-level effects via the utilisation of universal and targeted strategies (Sanders et al., 2008). A large-scale population trial of Triple P in Australia utilising all five levels of the program (including a media and communications strategy, a seminar series and primary care interventions) led to a significant reduction in the number of children with clinically elevated and borderline behavioural and emotional problems and a reduction in parent depression, stress and coercive parenting within a disadvantaged community (Sanders et al., 2008).

One of the potential benefits of a population-wide parenting program that utilises universal and targeted strategies (see Sanders et al., 2008) is that it provides an opportunity for community-wide change, thereby possibly changing community-wide approaches to parenting. As Sanders et al. (2008) note: 'The blending of universal and targeted intervention components has the advantage of creating a more generally supportive community environment for raising children which may in turn improve the maintenance of gains over time' (p. 219).

It is important to note that parents may face challenges when undertaking parenting programs. In a qualitative study regarding disadvantaged parents' experience of a parenting program, Furlong and McGilloway (2012) found that parents often experienced discomfort with praise and positive attention, conflict with their partner and challenges associated with parenting in an antisocial environment. This may lead to poor rates of program completion, which can subsequently reduce the effectiveness of parenting programs (see, for example, Simkiss et al., 2013).

The phenomenon of poor parenting program completion potentially increases inequities between children, as the parents of children experiencing disadvantage may be less likely to complete a parenting program and the parents of children who are less disadvantaged will benefit most from the program. This highlights, once again, the importance of equitable access to services – equitable access incorporates the services offered being appropriate to the needs of families (Levesque et al., 2013). In other words, parenting programs that fail to address the fact that parents may be uncomfortable with praise and positive attention may not be appropriately meeting the needs of *all* parents.

One parenting behaviour that can have especially negative impacts upon children is child maltreatment. Some parenting programs have been shown to reduce parenting behaviours associated with child maltreatment amongst parents who have previously abused their children or are involved with statutory child protection authorities (Barlow et al., 2006; Chaffin et al., 2004; Thomas & Zimmer-Gembeck, 2012). However, evidence regarding direct impact (i.e. an impact on actual maltreatment) is limited, as is the quality of the existing evidence (MacVear et al., 2014).

[25] This culturally tailored version of Triple P was also found to have high rates of satisfaction amongst participants (Turner et al., 2007).

A rapid review of parenting interventions for parents of children aged up to six years who have been abused or neglected or are at risk of abuse of neglect found that of 81 interventions identified, only one met the review criteria as 'well supported' by the evidence (the Nurse Family Partnership – an intensive home visiting program) (MacVear et al., 2014). Parenting programs that target harsh or aggressive discipline have had mixed results in the US – in some cases reducing repeat referrals to child protection agencies (Jouriles et al., 2010) and in other cases having no impact upon maternal smacking behaviours (Casanueva et al., 2008). Parenting programs may improve some outcomes associated with physical abuse; however, there is not enough evidence to make the same claim regarding physical neglect (Barlow et al., 2006).

Parent-child interaction therapy (PCIT) is one intervention that has had some success in reducing factors associated with child maltreatment and, in some cases, actual maltreatment (Chaffin et al., 2004; Thomas & Zimmer-Gembeck, 2012). Thomas & Zimmer-Gembeck (2012) evaluated the effectiveness of PCIT for families at risk of, or with a history of, child maltreatment. The 12-session program was found to lead to significant reductions in mothers' self-reported levels of stress. Observations indicated they had significantly more positive verbalisations with their children and greater maternal sensitivity when compared to the control group (Thomas & Zimmer-Gembeck, 2012). Another RCT of PCIT found that it significantly reduces re-reports of physical abuse (to a child protection service) amongst physically abusive parents (Chaffin et al., 2004). As with many similar programs, recruitment, engagement and retention can be challenging (Fernandez et al., 2011).

Summary

When considering what can be done to reduce inequities during childhood, the evidence that we identified indicates some common themes; however, the extent to which these themes provide guidance as to which approach will be more effective than another is limited.

To begin with, providing resources (e.g. money, housing infrastructure, vitamin supplements, parenting programs) in and of itself will necessarily improve the absolute position of the most disadvantaged children and families. This is most likely because the most disadvantaged children and families are experiencing multiple and complex problems that typically require multi-faceted intensive forms of support – as the evidence regarding welfare-to-work interventions in the US and housing interventions in remote ATSI communities demonstrates. In order to address some problems, however, providing resources (e.g. fruit and vegetables to ATSI families in rural communities) may improve the immediate circumstances of children (i.e. their nutritional intake), which may then have a longer-term impact upon their overall health.

Secondly, interventions that target at-risk or disadvantaged groups can be effective at improving outcomes for children and families, and interventions that target disadvantaged communities (e.g. area-based interventions, community-level obesity prevention programs) can also have positive effects, but the extent to which targeted interventions reduce the absolute gap between the best- and worst-off children and families is often unclear. Any intervention that has the potential to stigmatise already stigmatised groups is likely to have limited effects, and in some cases may even do harm. Community involvement and engagement is especially important for any intervention within ATSI communities. Community-level interventions would appear to be especially beneficial in

changing problematic community-wide views and attitudes that detract from the efforts individual parents and families make to improve their children's outcomes.

Thirdly, universal interventions during early childhood – such as universal early childhood education and care and universal early years health coverage – do seem to have an impact upon inequities between children and and between families. Universal health promotion strategies (e.g. strategies designed to increase women's awareness of the importance of folate) could potentially increase inequities if they don't 'speak to' families from vulnerable or disadvantaged groups. On the other hand, because inequity is about the entire socioeconomic spectrum, some 'universal' strategies have been shown to have a considerable impact upon inequities between children and families – for example, increasing the percentage of gross domestic product (GDP) invested in public health expenditure, the fortification of commonly consumed food with folate and the fluoridation of water. In the following section, we will bring together the findings from all of the information we have provided in this report, in order to identify the most promising strategies for reducing inequities during early childhood.

6. Discussion

In this discussion we will summarise the strategies which would appear to have the most potential in regard to reducing inequities during early childhood within the Australian context. In doing so we emphasise that reducing social inequity overall will require a focus on all stages of life, not just early childhood. Furthermore, there is clearly no single solution to the type of problems that cause inequity during the early years. Although some layers of influence are easier to address than others (attempts to address child health inequity have typically focused on individual behaviours, Law et al., 2012), what is needed is a multi-level, multi-faceted response that involves all the layers of influence outlined in the VicHealth Fair Foundations framework (2013).

The strategies we outline below are organised according to the Fair Foundations layers of influence. We have provided examples of action for each layer of influence. The strategies and actions are based upon the evidence we have outlined in this report. Not all strategies and actions are based upon 'gold standard' evidence. Rather, it is the accumulated evidence from a range of sources that has led to the content within the following list.

Following the description of strategies and actions, we outline the limitations and gaps in the evidence and provide suggestions for future research and data collection. As the evidence regarding some of the following strategies is limited in the Australian context, suggestions for further research are important to consider.

Socioeconomic, political and cultural context

Governance

- **A different approach to governance and leadership**: wicked problems require decision-makers to 'ask questions and engage the collective' in order that situations can be collectively assessed (Grint, 2010, p. 9). This form of leadership requires a different approach on the part of decision-makers (e.g. government, non-government organisations) towards leadership, as well as a different approach on the part of 'the collective' (communities, individuals); that is, a willingness

to engage in decision-making processes. In addition to being a more appropriate response to complex problems, collective approaches also potentially increase people's sense of control, which has been shown to be associated with good health.

Overall, in order to address wicked problems, we need to recognise as a society that wicked problems cannot be solved easily or quickly. For example, international evidence suggests that simply providing money to low-income families will not necessarily improve outcomes for children. Poverty is a *wicked* problem. It is the social construction of problems that determines how we respond to them – if we view a problem as something that requires a critical response (i.e. decisive, immediate action), it will not be resolved, and may even get worse (Grint, 2010).

Examples of actions:

- Collaborative networks that involve governments, services and communities working together to address complex problems
- Resources and training for staff within decision-making bodies (e.g. governments and non-governmental organisations) to engage with communities about complex issues
- Community development initiatives that build the capacity of marginalised and disenfranchised communities to participate in decision-making processes

Policy

- **Maintain the quality agenda in early childhood education and care**: high quality ECEC is a critical component of any effort to reduce inequity during early childhood, and the National Quality Agenda for Early Childhood Education and Care (Council of Australian Governments, 2009d) is a positive step towards improving ECEC quality in Australia. However, there are concerns regarding the cost of improving ECEC quality for government and for individual parents, and suggestions that various aspects of the quality agenda should be amended.

  All aspects of the National Quality Agenda need to be maintained. Although improving the quality of ECEC will cost money in the short term, the evidence clearly demonstrates that the long-term social and economic benefits will far outweigh the short-term costs.

- **Policies that make it easier for families with young children and experiencing disadvantage to access high quality early childhood education and care**: children from disadvantaged backgrounds benefit especially from high quality ECEC, yet they are less likely to utilise those services. Policies that make it easier for families experiencing disadvantage to access high quality early childhood education and care will help to reduce the gap between children from advantaged and disadvantaged backgrounds.

  The current policy enabling universal provision of preschool for all four-year-olds (for 15 hours per week) is an example of a policy that may lead a reduction in inequity during early childhood. Free or low-cost preschool for three-year-old children from disadvantaged backgrounds may also be useful, especially considering the evidence suggesting that for children from disadvantaged backgrounds, two years of high quality ECEC is better than one.

- **Policies that enable greater workforce flexibility:** high quality ECEC is a critical component of any attempt to reduce inequity during early childhood, but high quality ECEC alone will not narrow the gap – the quality of the home environment is just as, and possibly even more important.

  Greater workforce flexibility for *all* parents of young children (including fathers) that enables them to participate in their children's learning within the home (e.g. reading to children, singing songs with children, encouraging children's meaningful participation in daily activities) is critical to positive outcomes for children. If workforce flexibility is dependent upon the type of job one has, or one's income, there is a risk that inequity during early childhood will increase – as those parents who can 'afford' flexibility will have more time to participate in their children's learning and development.

- **Policies that ensure stable and secure employment for primary caregivers when they are ready to return to work:** family joblessness is a concern in Australia, especially amongst lone parent families. Policies that seek to encourage employment amongst parents of young children need to take into account the important role that accessibility to high quality ECEC will play in: (a) enabling primary caregivers to go back to work; and (b) ensuring that their children are not disadvantaged by their primary caregiver returning to work.

  However, those policies also need to ensure that employment is stable and secure. Unstable, insecure employment may have a negative impact upon children. If those children are from already disadvantaged backgrounds, they may be further disadvantaged by their parents' employment. A primary focus upon employment for parents *at any cost* (i.e. regardless of the potential stability or security of that employment) is unlikely to reduce inequity during early childhood.

  Any policy that focuses on unemployed people risks increasing the stigma associated with unemployment in Australian society; therefore, it is important that the messages pertaining to the policy do not support those stigmatising views. If policies enhance stigma, and cause people to feel less self-worth, they will increase people's levels of stress. This is particularly detrimental for young children, for whom stress within the family can have life-long negative effects.

Examples of actions:

- Federal Government commitment to all aspects of the National Quality Agenda for Early Childhood Education and Care as a means of ensuring high quality universal early childhood education and care for *all* Australian children
- Free or low-cost preschool for all three-year-old children from low-income families
- Government incentives for employers to enable workplace flexibility for parents of young children, especially parents earning a low income or experiencing other forms of disadvantage
- Government disincentives for employers who do not allow workplace flexibility for parents of young children

- A media campaign targeting employers that highlights the benefits of greater workplace flexibility for employees, for young children and for long-term national productivity
- Support for primary caregivers who are ready to return to work to concurrently gain stable, secure employment *and* secure high quality early childhood education and care for their children

Cultural context

- **Improve public understanding of the importance of the early years and the impact and long-term effects of inequity upon young children**: Although the importance of the early years has gained traction in Australia's policy arenas, there are still a range of misconceptions amongst the general public about the early years (e.g. children only start to learn when they get to school). While these beliefs persist, the Australian population is less likely to tolerate the public cost of strategies that aim to improve children's outcomes during the early years.

  Efforts to raise public awareness should highlight how *everyone* will benefit from reducing inequality in the early years. This would involve emphasising the impact of the early years upon an individual's later ability to contribute to society in a meaningful way, whether socially or economically.

  The primary goals of improving public understanding of the importance of the early years are to: (a) encourage parents of young children to utilise policies such as workplace flexibility and (b) galvanise public support for early childhood strategies.

- **Improve public perceptions of early childhood education and care**: perhaps as a result of the misperception that the early years of a child's life are not as important as the school-age years, ECEC is sometimes viewed as a 'child minding service', rather than a highly important environment for children's learning and development. This view is reflected in ECEC employment conditions (e.g. poor rates of pay for ECEC professionals). As long as the general public views ECEC as a 'child minding service', they will be open to proposals that prioritise ECEC costs to the detriment of ECEC quality. Furthermore, continued poor rates of pay will act as a disincentive to people gaining ECEC qualifications, to ECEC professionals improving their qualifications and to highly qualified ECEC professionals staying in the sector. This will have 'knock on' effects on the quality of care that young children receive in ECEC settings.

Examples of actions:

- A national media campaign that highlights the importance of the early years and the negative impact of inequity during the early years
- Support existing initiatives that aim to bring attention to working conditions for ECEC professionals (for example, see *Quality Matters: A Big Steps Campaign*)

Daily living conditions

- **Progressive universalism**: universal services are an integral component of Australia's health and human services system and there is some evidence to indicate that states and territories in

Australia that have comprehensive universal early years services coverage have lower levels of child developmental vulnerability (Brinkman et al., 2012). For families who are struggling, however, universal services may not be enough. Targeted services (those that target at-risk families) and secondary services (those that treat existing problems) are also critically important; yet often they don't reach the families who need them.

A system of progressive universalism involves a 'baseline' of universal services for all families, with additional services provided according to need. As problems for children, parents (and expectant parents) and families can occur at any level of the social gradient, it is important that intensive support is available for any family that needs it, on a flexible basis (i.e. a family that is not struggling at one point may struggle at another), as Jansen et al. (2013) note in regard to interventions for childhood overweight and obesity:

> Clearly, targeting children with early overweight and low socioeconomic background – particularly those from socially disadvantaged families – must be a top intervention priority. Nonetheless, as vulnerability to unhealthy weight gain increases incrementally with each quintile further from the most advantaged, only whole-society approaches will eliminate overweight-associated morbidity.

Additionally, in order that problems can be identified early, universal service providers need to have the skills to identify which parents (including expectant parents) and families are struggling. Perhaps more importantly, parents and families need to have the confidence and trust to approach service providers when problems arise (see 'Welcoming, inclusive services' dot point below).

Prompt identification and response are important: stress during the prenatal period has a negative impact upon the developing foetus. After children are born, the longer they experience adverse environments (e.g. family violence, child maltreatment, homelessness) the worse their outcomes will be. Identifying and responding to problems early also reduces the pressure on secondary services (e.g. statutory child protection services).

- **Universal high quality early childhood education and care available in all communities**: in addition to policies that make it easier for disadvantaged families to access high quality ECEC, high quality ECEC needs to be available in all neighbourhoods. If ECEC programs in disadvantaged neighbourhoods in Australia are of poorer quality than programs in advantaged neighbourhoods – as the current evidence suggests – then socially determined developmental inequities between children from disadvantaged and advantaged neighbourhoods are likely to persist.

  Having a range of high quality early childhood programs within a community for children during the period prior to school, beginning in infancy, is important. As Heckman (2013) notes, effective early strategies 'provide a menu of high quality programs from which parents can choose' (p. 41). Community playgroups, bilingual story-telling programs and music programs for infants and parents all have potential benefits for children, parents and the parent-child relationship.

- **Universal high quality antenatal services available in all communities**: a mismatch between the conditions experienced prenatally and postnatally can impact negatively upon a child's

development. The infant of a woman who is depressed when pregnant but not depressed after the baby is born may experience some delays in their development. It is therefore important that pregnant women and their families are supported in order to minimise the potential for a 'mismatch' between the prenatal and postnatal environments. To ensure continuity between the prenatal and postnatal experiences, the services that support pregnant women and those that support women postnatally need to belong to a service system that enables collaboration.

- **Service systems that enable collaboration between professions, between services, between sectors and with communities**: the type of problems that cause inequity during early childhood are characterised by complexity, and many families are struggling with multiple and complex problems that involve a range of external stressors. These problems cannot be resolved by any single organisation or even a single sector. Resolving these problems requires different forms of leadership, as well a fundamental shifts in the service system.

  Individual professionals may have the will to collaborate with professionals outside their organisation and outside their sector; however, there may be numerous systemic barriers that restrict their capacity to do so (e.g. lack of time). Service systems that enable collaboration facilitate better communication, joint decision-making and joint service planning at the local level, thereby allowing families to more easily navigate the service system and receive a more holistic form of care.

  Service systems that enable collaboration with communities through, for example, parent advisory groups or joint parent-professional training opportunities are better able to respond to the needs and circumstances of families and also better able to keep abreast of emerging problems and respond to them promptly. Building the capacity of communities helps to make such initiatives sustainable in the long-term. It is important also that the views of children themselves are heard, in a way that is age-appropriate.

- **Evidence-based programs**: programs for which there is evidence to demonstrate their effectiveness. There is a plethora of programs that have been shown, through experimental trials, to be effective in improving outcomes for children and families (see section 5 of this report). Yet no one program is a 'magic bullet' for solving multiple, complex problems or the problem of inequity during early childhood.

  Taking beliefs and values into account is especially important when implementing an evidence-based program. If the program does not align with the beliefs and values of the family or the community, they are less likely to engage with it. A varied 'menu' of options for communities and families is beneficial. Being able to choose the program that they believe best suits their circumstances will increase people's sense of control, which, as noted, is associated with good health.

- **Welcoming, inclusive services**: For any service, it is necessary to emphasise the importance of the 'what' and the 'how.' In other words, it is not only *what* support is provided (e.g. which program), but also *how* that support is provided (CCCH, 2006; Moore et al., 2012a). A welcoming, inclusive service environment is not enough to shift child and family outcomes; however, qualities such as a relationship- and partnership-based approach, capacity-building approaches and providing choices appear to be important primary threshold factors (Moore et

al., 2012a). That is, without these qualities families are unlikely to engage with the programs that services offer – and without engaging in the programs, there is unlikely to be any change.

A welcoming, inclusive service environment is especially important in communities where there is a history of distrust regarding service providers or a history of failed public policy initiatives. Inclusive services *continually* seek to engage *all* families within a community through, for example, ongoing outreach programs.

- **Supportive communities**: Although formal services are an important form of support for families, informal support from extended family, friends, neighbours and colleagues is perhaps more important. Not only does informal support provide potential practical assistance (e.g. help when a parent is sick, looking after children in an emergency), informal sources of community support provide families with a sense of belonging, reduce the potential for social isolation and potentially ameliorate some of the negative effects of the rapid changes occurring in society (see section 3 of this report). In addition, informal support is typically more sustainable than formal support. Formal support may only be available for a specific period of time or during a specific event (e.g. a natural disaster), whereas informal support is likely to be more enduring and flexible.

- **Support for communities to engage in decision-making processes**: we have identified the importance of new forms of leadership (see above). However, it is important to note that the success of these collective efforts relies not only on decision-makers, but also on communities and community members. They are the ones who need to respond to the questions they are asked and act differently.

  Not all communities – or community members – will have the practical and personal resources to participate in these processes (e.g. knowledge of community events, self-confidence); therefore, it is important that there is support for communities to engage in those processes. Decision-making processes that only involve community members – and communities – that already have a strong voice will maintain, or perhaps even worsen, social inequity.

- **Information about services and about child development available to families from a range of different backgrounds**: knowing about services, and knowing about child development, is important for the parents who are expecting a child and parents of young children. Families need information in a range of different languages and tailored to their differing circumstances (e.g. literacy level). It is also important that the information is available through a range of different mediums (e.g. online, through the local council, through advertisements at community events). In some settings, word-of-mouth exchanges with other local parents will be the most effective way of informing parents about services.

Examples of actions:

- Integrated child and family services that comprise universal and targeted support services and provide holistic support to families with young children in welcoming, inclusive environments

- Professional development opportunities for universal service providers to identify at-risk families

- Initiatives that develop the capacity of communities to work together to identify and respond to community problems
- Accessible spaces for parents with young children to gather, socialise and develop friendships with other parents and families (e.g. parents' space within a primary school)
- A series of community-wide workshops that invite community members to participate in decision-making processes regarding the local community in an informal, respectful manner
- Working together agreements that are developed by service providers and families and outline how service providers will interact with each other, how families will interact with service providers, how service providers will interact with families and how families with interact with other families
- Locally led networks of service providers and community members making joint decisions regarding factors that impact upon child, family and community functioning (e.g. local parks and public spaces, community events, new programs and initiatives)
- Promotion of services for families with young children through non-English-speaking radio programs
- Employment of representatives from local communities to promote local services (e.g. manning booths at community events, attending English language programs to inform parents about local services)

Individual health-related

- **Parents know what services are available and what type of support is offered by those services**: in order to utilise services, parents need to know they are available. They also need to know what support those services offer, and understand why that support is beneficial to their children (e.g. identifying potential developmental delays).
- **Parents feel confident and supported in their role as parents**: parent attitudes about parenting are important to child outcomes, as attitudes mediate parents' behaviour towards their children. Some parents will be confident in their parenting role, regardless of the circumstances. Some parents' confidence will be affected by factors specific to their child – such as their child's temperament – or their confidence may waver depending upon the child's age or external circumstances. Some parents will lack confidence, regardless of their child's personality or behaviour and find it difficult to develop a positive attachment to their child. Some parents will simply require reassurance about their parenting. Others may need more intensive support. A service system that reflects the characteristics of progressive universalism should be able to provide that support when it is needed.
- **Parents know about the importance of the home environment and how they can support young children's learning and development in the home**: it is important that there are structures in place to support parents to support their children's learning and development during the early years. However, it is also vital that parents understand the importance of the home environment and are aware of practical strategies they can implement to support their

children's learning and development. As with parent confidence, some parents will require more intensive support with this task than others.

- **Parents know about child development and the factors that promote positive health and development**: knowledge of child development is important as it helps parents understand their child and their child's behaviour. As with knowledge regarding the home environment, parents need information about practical strategies they can undertake (e.g. reading to children, providing children with opportunities to participate meaningfully in the daily life of the family, participation in high quality ECEC).

Examples of actions:

- Online resources for parents to learn about child development (e.g. *Raising Children Network*)
- Culturally specific peer mentoring programs that provide parents from culturally and linguistically diverse backgrounds with information about parenting in their own language, provided by peers rather than 'experts'
- A text-message service for parents that gives them information about how to support their child's health and development and provides them with information about local services
- Programs that have been shown to improve parenting confidence, improve parent-child attachment, improve maternal sensitivity and/or improve the quality of the home environment, available in a range of different languages

Limitations and gaps in the evidence

- **The impact of policies upon inequities**: At present, there is limited evidence to indicate the impact of social policies upon inequity amongst children and families in the Australian context. As a result, we can only speculate regarding their impact. For example, one critique of the PPL scheme is that it will unfairly benefit women on high incomes because the benefit is based upon a woman's income, rather than being a 'flat rate' (Macklin, 2014; Maley, 2013; Whiteford, 2013). Without evaluation of policies, we can only speculate about their impacts and, as a result, debates regarding policies such as the PPL remain mired in political ideology, rather than resolved through careful consideration of the evidence.
- **The impact of interventions upon inequities**: we found limited evidence demonstrating the impact of interventions upon inequity, especially in the Australian context. Although there is evidence indicating the impact of interventions upon children and families, including those who are experiencing disadvantage, an 'equity lens' in the evaluation of interventions is uncommon. Waters and colleagues' (2011) systematic review of interventions for preventing obesity amongst children is a rare example of a study that did look specifically at the impact of interventions upon health inequity. For interventions that target 0-5-year-old children, they found 'a lack of analysis by a measure of equity or SES' (p. 21). Without this type of evidence, we cannot determine whether interventions are reducing, maintaining or increasing inequities for children.

- **There are specific gaps in the evidence regarding a range of different types of interventions in the Australian context**, including:
    - legislation pertaining to exposure to second-hand smoke and its impact upon inequitable exposure to second-hand smoke amongst children;
    - housing interventions amongst Indigenous families living in urban and regional areas;
    - strategies designed to improve service access for families with young children;
    - how to reduce inequities in obesity prevalence amongst children;
    - what works to prevent obesity amongst young (i.e. 0-5-year-old) children;
    - smoking cessation programs for pregnant ATSI women;
    - policy and community initiatives designed to promote breastfeeding; and
    - peer support programs designed to improve breastfeeding rates.

Suggestions for future research and data collection

- **Experimental or quasi-experimental longitudinal studies regarding the impact of policies upon inequity** between children and between families
- **Research and evaluation projects related to the aforementioned interventions** (in 'Limitations and gaps in the evidence'), for which there is limited evidence within the Australian context
- **Research and evaluation projects that incorporate children's experiences and views** of policies, interventions and social initiatives
- **Evaluations of initiatives that involve community-based collaborations** between professionals, services, sectors and communities
- **Research that explores the current state of knowledge in the Australian population regarding early childhood** and strategies for enhancing the general public's understanding of early childhood
- **Research that explores the most effective means of supporting parents to support children's learning and development within the home environment**. Our review indicates that both area-based initiatives and home visiting programs are beneficial in this respect; however, there may be other strategies that could be used for this purpose.

Conclusion

Giddens (1999) argues that as a society we 'prize' children. If this is the case, the evidence indicates that Australia – as a society – prizes some children more than others; otherwise, we would work harder to reduce the inequities that impact upon children's health and development.

‘Every child needs at least one person who is crazy about [them]’ (Bronfenbrenner, 1979), but one person is not enough. In addition to having one person who is ‘crazy about them’, children also need to feel that they are supported, that they are valued and that they belong – as do their parents, their families and expectant parents. They need a service system and broader sociopolitical environment that supports and facilitates positive parent-child interactions and attachments, high quality care and learning experiences in all environments and timely, appropriate and effective support when problems arise.

If, as a nation, we truly prize children, then we need to work collectively to ensure that the social and economic circumstances of their families and communities – particularly during the antenatal period and the early childhood years – do not compromise their health and wellbeing, and do not limit who they are, and who they can become.

Appendix A: Methodology

The search strategy used for this report had four components. The reason for using more than one approach to the search strategy is that traditional systematic database searches (the default approach to literature reviews) may not pick up on all the key studies and literature, and thereby limit the findings of the final review. Furthermore, for a review with a fairly broad scope and a tight timeline, this search strategy is likely to yield the most relevant literature in the most efficient way.

The four components of the strategy were:

1. a traditional database search;
2. a search for information about and findings from specific longitudinal studies;
3. a search for authoritative summaries, conceptual and theoretical works (including work done by CCCH already); and
4. a search of relevant websites.

These components were 'matched' to the relevant research questions (see **Table 1** below). The traditional database search is limited to finding information about specific interventions (i.e. what works to reduce inequities).

Table 1: Research questions and strategic components

Research question	Search components
What causes inequities in health and development (at each layer of the social determinants framework) during the prenatal and early childhood years?	Search components #2, #3 and #4
What works to reduce inequities (at each layer of the social determinants framework) during the prenatal and early childhood years?	Search components #1, #2, #3, #4
What happens in early childhood (at each layer of the social determinants framework) that leads to later inequities/variations in adult health and health behaviours (including inequities in: healthy eating, tobacco smoking, alcohol consumptions, physical activity and mental wellbeing)? How do interventions during early childhood reduce later adult inequities?	Search components #2, #3, #4

Further information about each of the four search components is provided below.

Traditional database search

We used the following bibliographic databases: SCOPUS, MEDLINE, PsycINFO to undertake the search (search terms in Table 2 below). The search structure is based upon the PICOT format (used to formulate questions in evidence-based practice) – the format has been adapted for the specific purposes of this search. The search focuses upon the types of interventions and factors that are likely to impact upon equity amongst young children, based upon the combined knowledge of the authors and associated advisor, and according to the three layers of influence in the Fair Foundations framework (see **Table 2** below).

Search terms were adapted to meet the needs of the specific databases. The formal database search was supplemented by 'snowballing' (following up cited studies and citation searches) and personal knowledge of the relevant literature. Grey literature was identified via the other search strategies (see below). For reasons of efficiency, we simplified the search in order to identify publications through Google Scholar.

Table 2: Search terms*

1. Context	2. Population	3. Intervention			4. Outcomes
		a. Socioeconomic, political and social context	*b. Daily living conditions*	*c. Individual health-related factors*	
• Australia • New Zealand • Canada • United States • England • Wales • Scotland • Ireland • high-income country	• pregnan* • prenatal • infant • early childhood • preschool-aged	• politic* • policy/policies • economic* • cultur* • social • socio* • norm • value • infrastructur*	• home environment • parenting • family relationships • workplace • early childhood education (child care, kindergarten, preschool) • early years of school • housing • transport • neighbourhood • community • social participation • social networks • social inclusion • social isolation • health care • community services	• knowledge • attitude • awareness • behav*	• affordab* • access* • availab* • equit* • inequit* • inequalit* • equalit* • disparit* • disadvantag*

* Using the PICOT framework, the search involved: #1 (context) AND #2 (population) AND #3a OR #3b OR #3c (interventions, each layer) AND #4a OR #4b (outcomes). In order to make these searches manageable, where appropriate, these searches were further refined by limiting one or more of the following: subject area (e.g. medicine, nursing but not agricultural studies), and document type (e.g. not editorials).

The criteria for inclusion were as follows:

- rapid reviews, meta-analyses, systematic reviews and experimental and quasi-experimental research designs (however, if a particular 'layer' of the framework has limited literature, other types of studies may be considered);
- publications published during or after 2003; and
- English language publications.

After the searches were completed, potentially relevant publications were identified by screening publication titles. The abstracts of the remaining publications were then reviewed in more detail to assess whether they met the inclusion criteria. The total number of relevant publications are identified in the far right column of **Table 3** below.

Table 3: Results from database searches

Topic	SCOPUS*	MEDLINE	PsycINFO*	Total potentially relevant abstracts reviewed*	Total number of relevant publications
Socioeconomic, political and cultural context	2490	86	243	195	28
Daily living conditions	2590	97	288	829	248
Individual behaviours and attitudes	2432	66	579	323	37

* After removing duplicate publications identified through searches undertaken for other layers of the framework.

Search of longitudinal studies

Longitudinal studies are most likely to reveal links between prenatal/early childhood experiences and later health behaviours and outcomes. This search focused on published findings from key longitudinal studies, including:

- Christchurch Health and Development Study
- British Cohort Study (British Birth Cohort)
- Adverse Childhood Experiences Study
- Longitudinal Study of Australian Children.

Search for authoritative summaries and reviews

Over the last decade or so, there have been numerous authoritative reviews of the impact of early inequities on child development, and on health and wellbeing over the life course. Those published in peer-reviewed journals were identified through the database search, while those published in the grey literature or in books were identified through website searches (see below), handbooks (see below), existing local reviews (including those conducted by CCCH, such as Goldfeld et al., 2014; Goldfeld & West, 2014; McDonald et al., 2012; Moore & McDonald, 2013), and personal knowledge.

A fruitful source of authoritative summaries are the major handbooks published on relevant topics, such as infant mental health (Zeanah, 2009), child wellbeing (Ben-Arieh et al., 2014), developmental disabilities (Odom et al., 2007), early childhood education (Pianta et al., 2013), and environmental influences on development (Mayes & Lewis, 2012).

Relevant websites

This search involved a scan of the websites of key national and international think tanks searching for relevant reports and research summaries (i.e. 'grey literature'). Websites include the following:

Australian websites

- Australian Institute of Family Studies

- Australian Institute of Health and Welfare
- Melbourne Social Equity Institute
- Social Policy Research Centre
- Telethon Institute for Child Health Research
- VicHealth

UK websites

- Centre for Excellence and Outcomes in Children and Young People's Services (C4EO)
- UCL Institute of Health Equity

Canadian website

- Human Early Learning Partnership (HELP)

US websites

- Center on the Developing Child/National Scientific Council on the Developing Child
- Child Trends.

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